

PEERS WHITECOURT LAND USE STUDY

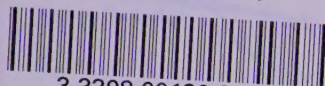
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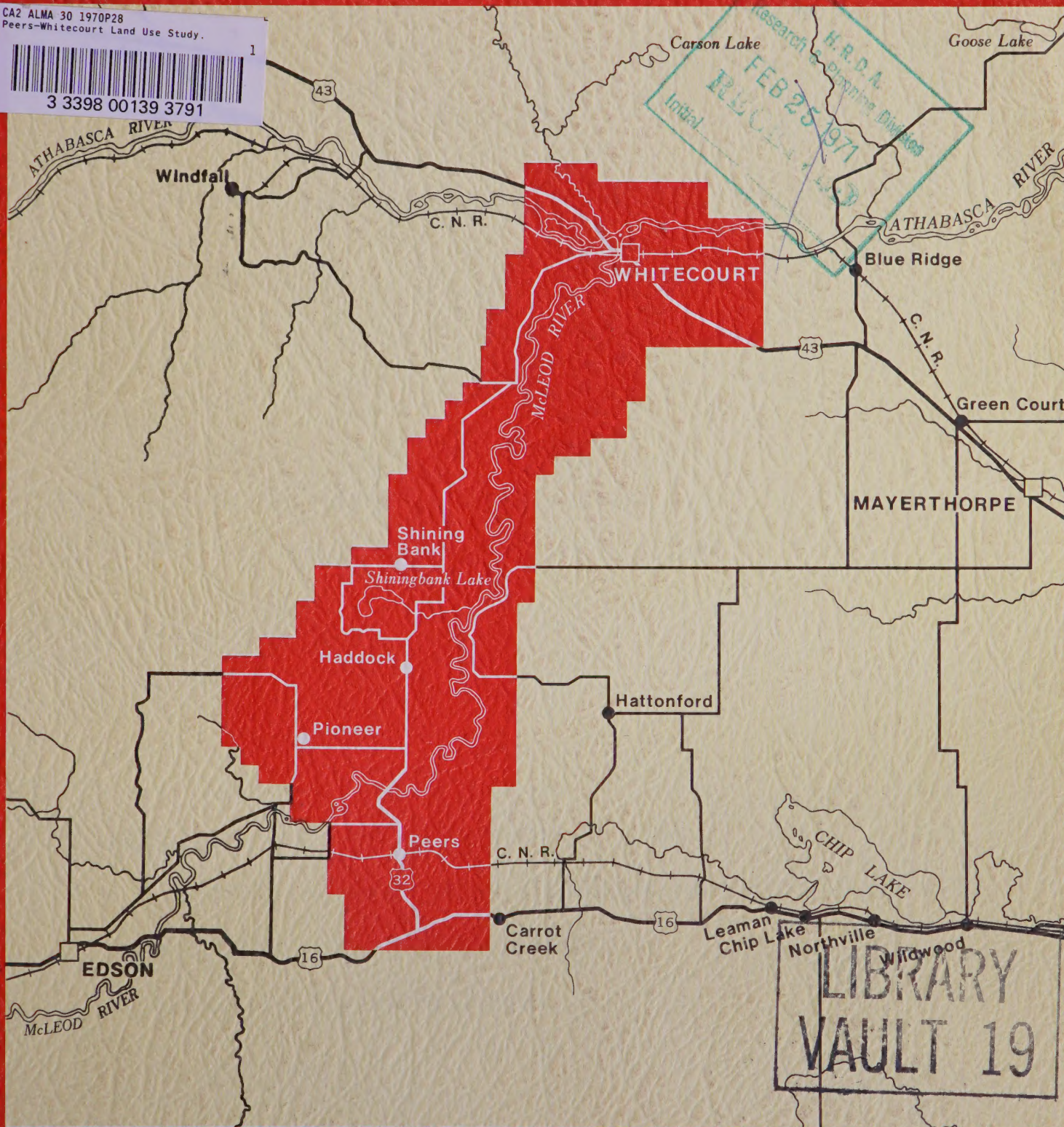
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Peers-Whitecourt Land Use Study.



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DEPARTMENT OF MUNICIPAL AFFAIRS

SPRING 1970

ALBERTA
PEERS - WHITECOURT LAND USE STUDY

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PEERS - WHITECOURT LAND USE STUDY

INTRODUCTION

Although this report is entitled a "Land Use Study", it will resemble in many ways a sub-regional plan. For the present we shall call the area that we are dealing with a sub-region.

What is a sub-region?

A sub-region is a territory or area of land which possesses enough of the measure of sameness of various characteristics to distinguish it from its neighbours. Climatic sub-regions are those in which certain combinations of flora and fauna can flourish depending on certain soil and weather conditions. Watersheds are sub-regions which unite factors of drainage and streamflow. Jurisdictional sub-regions represent the geography of governments, and although they may not appear very logical, they are extremely important for it is upon these sub-regions that statistical data is collected and upon which government decisions and laws are formulated.

"A region is not an actual, distinctive, physical entity which exists merely waiting to be discovered - its definition depends upon the criteria employed in defining it and thus for the most part, upon the specific needs of the study."¹
A sub-region is merely a part of the larger region.

¹Morris Hamburg & Thomas W. Langford Jr. Selected Methods of Analysis for Urban Economic Planning and Development in Pennsylvania: Commentary on Regional Economic Accounting Systems, Benefit - Cost Analysis and Statistical Decision Theory. Department of Internal Affairs, Pennsylvania, 1964.

II OBJECTIVES

The main objective of this study is to present a meaningful optimum land use plan to the various government bodies responsible for the administration of the Peers-Whitecourt area. During the past few months there have been numerous requests for grazing and agricultural permits as well as applications for country residential and recreational land. A lack of detailed information in the area presented a problem to government officials ruling on these matters for it was not known if the land was actually suited for the requested uses.

This plan will analyze the physical, economical and social aspects of the sub-region in an attempt to indicate the highest and best use of each quarter section of land throughout the study area. This optimum land use plan must be viewed as a guide only, for it is impractical to dictate the specific utilization of a given quarter section of land. The plan is not a zoning by-law for it has been impossible to obtain sufficiently detailed information on all of the 1,936 quarter sections to form such a document, but for the purposes of statutory implementation it could form part of the general plan (joint) of Improvement Districts 14 and 15 pursuant to the Planning Act.

The concept of multi-purpose development has been considered throughout the preparation of the plan. Sometimes an area can be used for timber production with some livestock grazing, while at the same time it serves well as a watershed and may have recreation and wildlife value. Forested land plays an important role in relation to water supplies and stream control. It reduces the severity of floods by delaying snow melt until water from open areas has passed downstream. G. Tunstall in an article entitled "Using the Forest for Many Purposes", points

out that "some forest areas may be more valuable for their yield of water than for their timber yield."² We have co-ordinated the efforts of several government departments in order to develop a truly multi-land use plan which considers equally the requirements of the agriculturist, forester, recreationist and conservationist, as well as indicating to the landowner how his land may be developed to his greatest advantage.

The plan is largely based on a physical classification of the land in an attempt to determine and regulate areas within which agriculture, forestry or a combination of these can be carried out. It is not the intent to prohibit the development of farm woodlots in quarter sections indicated as being suited for agriculture, or the construction of recreation facilities in areas indicated for forestry. Activities must be integrated so that a unified program for the utilization and conservation of the renewable resources is achieved.

²G. Tunstell, Regional and Resource Planning in Canada, "Using the Forest for Many Purposes," 1963, p. 137

III LOCATION

The Peers-Whitecourt Land Use Study area is located in west-central Alberta, between townships 53 - 60 and ranges 11 to 15. It forms part of Improvement Districts 14 and 15 and covers 309,760 acres (484 square miles) of which lakes and rivers occupy 9,380 acres. The region extends in a north-south direction for approximately 40 miles from Highway 43 in the north to Highway 16 in the south. Edson is located approximately 20 miles to the west and Edmonton 90 miles to the east. Whitecourt is located in the northern portion of the region at the confluence of the McLeod and Athabasca Rivers. Of the several hamlets which exist, Peers is the most significant and is situated five miles north of Highway 16 on Highway 32.

IV DESIGNATION OF BOUNDARIES

The original intent was to conduct a land use study along Highway 32 between Peers and Whitecourt regarding the suitability of the area for small holdings. However, it was felt that any study in this area must be more comprehensive in nature and include additional land uses. The study area was therefore expanded to include all lands adjacent to the McLeod and Athabasca Rivers as well as Long, Bear and Shiningbank Lakes. It was also considered important to include Whitecourt Mountain for here existed an area of considerable recreational potential. Early investigations indicated that there would be a shortage of sites suitable for small holdings, (country residences) within the original study area boundary. It appeared that the land east of Whitecourt would be ideally suited for country residences so an additional 32 square miles was added to the study area.

The original boundary of the area involved was chosen on the basis of its physical characteristics following contours, heights of land, valleys, etc. However, in order to facilitate quantification of the numerous factors involved in the study, the boundaries were adjusted to correspond to the nearest section lines.

V HISTORY

Historically the Peers-Whitecourt region can be divided into two sub-regions, the Whitecourt area and the Shiningbank Lake-McLeod River Valley area. The history of the Whitecourt area goes back to 1905 when settlers were moving northwestward from Edmonton to the unsettled Peace River country. A number of these pioneers settled near the confluence of the Athabasca and McLeod Rivers, and in 1910 Whitecourt was formed. The population increased with rumors of a rail link between Edmonton and Grande Prairie via Whitecourt, and the surveyors to the Grand Trunk Pacific Railway plotted a rail line across the McLeod River at its junction with the Athabasca.

In the July 1st edition, Vol. 1, No. 47 of the 1915 Whitecourt News Recorder, the following article appeared: "If the C.N.R. can come as far as Whitecourt, only 20 miles more, they would get all the freight they could handle in timber, coal, horses, cattle, hogs, fish and farm products. They would also get what comes down the McLeod and Athabasca Rivers and goes on to Smith, Holmes Crossing and Athabasca Landing to get to Edmonton. Settlers are coming in every week to look over the ground, they all acknowledge that there are good homesteads to be had, but they ask what about a market for their products." The railway finally arrived in 1921, but the expected boom to economic growth did not take place.

The people of Whitecourt had high hopes for its future in the early days. It was felt that Whitecourt would be looked upon favorably by manufacturers as there was an abundance of water, the possibility of installing water power and rich coal deposits.

Vol. 1, No. 2 of the News Recorder, September 3rd, 1914, points out that "coal is abundant along the McLeod and Athabasca Rivers. With cheap coal, lumber and power, and with the shipping facilities, manufacturing would have a great advantage."

It was also rumored in 1914 that Whitecourt was soon to have a pulp and paper mill. Early records also state that the farmland was of the very best and was capable of growing anything suitable to the climate.

Optimism abounded in Whitecourt and its environs during this period as it did in many other settlements throughout the Province. Although Whitecourt may not have developed to the greatness that was once envisaged, it has prospered as a result of the construction of Highway 43 to Valleyview and from discoveries of oil and gas in the area, and it may soon obtain that pulp mill which was rumored as early as 1914.

Settlement in the southern portion of the study area began in the early 1900's. The majority of settlers came from the middle western states. Local records indicate that a settler from North Dakota homesteaded near Shiningbank Post Office in 1909. Vol. 1, No. 51 of the Edson Semi-Weekly Critic, November 8, 1913, describes the area as follows: "One of the most fertile and desirable agricultural sections of Alberta is the McLeod Valley, located to the east and northeast of Edson. The settlement begins a short distance north of Peers and continues almost without interruption for a distance of over 20 miles. The land in the McLeod Valley is undulating, partly covered with small timber and brush, and partly open. The soil is mostly clay, (chocolate coloured) which is suitable for raising large crops of all small grains and exceptionally good for potatoes and

vegetables. Stock raising will continue to be a prominent feature in the district."

It was further indicated at the time that the McLeod Valley when fully settled would support a town of 5,000 inhabitants as well as several villages.

The McLeod Valley has continued as a farming area, and although not too agriculturally productive, it has provided a livelihood for numerous rural residents. The Hamlet of Peers serves the local needs of the farmers, but Edson is considered to be the most desirable trading centre.

VI PHYSICAL GEOGRAPHY

(a) Geology

The geology of the study area is quite uniform in structure and quite varied in stratigraphy. The strata underlying the area is basically flat-lying. There is some evidence of local dipping within the region, particularly in the area from the centre of township 58 south to the centre of township 57 west of the fifth meridian. This expanse of territory experiences an exposure of highly crossbedded material with definite inclinations although the general area is still considered flat-lying. West of Peers a light dip to the east exists, but this is also considered a local feature. An interpretation by R. L. Rutherford for the Research Council of Alberta suggested that a broad syncline exists in this area, from the mouth of the Brazeau River to a point on the McLeod River at the north end of township 57. This syncline may represent the most easterly result of the mountain building movement to the west or may be interpreted as the remanent of a broad geosyncline which was gradually filled up during Cretaceous and early Tertiary time.

The stratigraphy of the area is more evident but less easily defined. The rocks underlying the Peers-Whitecourt area were deposited primarily in the late Cretaceous and early Tertiary ages. They are principally sandstones and shales that were deposited in the fresh water that was characteristic of these time periods. The Edmonton formation was of Upper Cretaceous origin while the Paskapoo formation resulted from Tertiary action. Between these two groups is a series of deposits that have characteristics of both formations. Since a boundary is indiscernable, this was named the Saunders group - a formation comprised of

Edmonton and Paskapoo materials. (A map showing the boundaries of these formations is included.)

With regards to the physical make up of these formations, the following description will give a general picture of the situation.

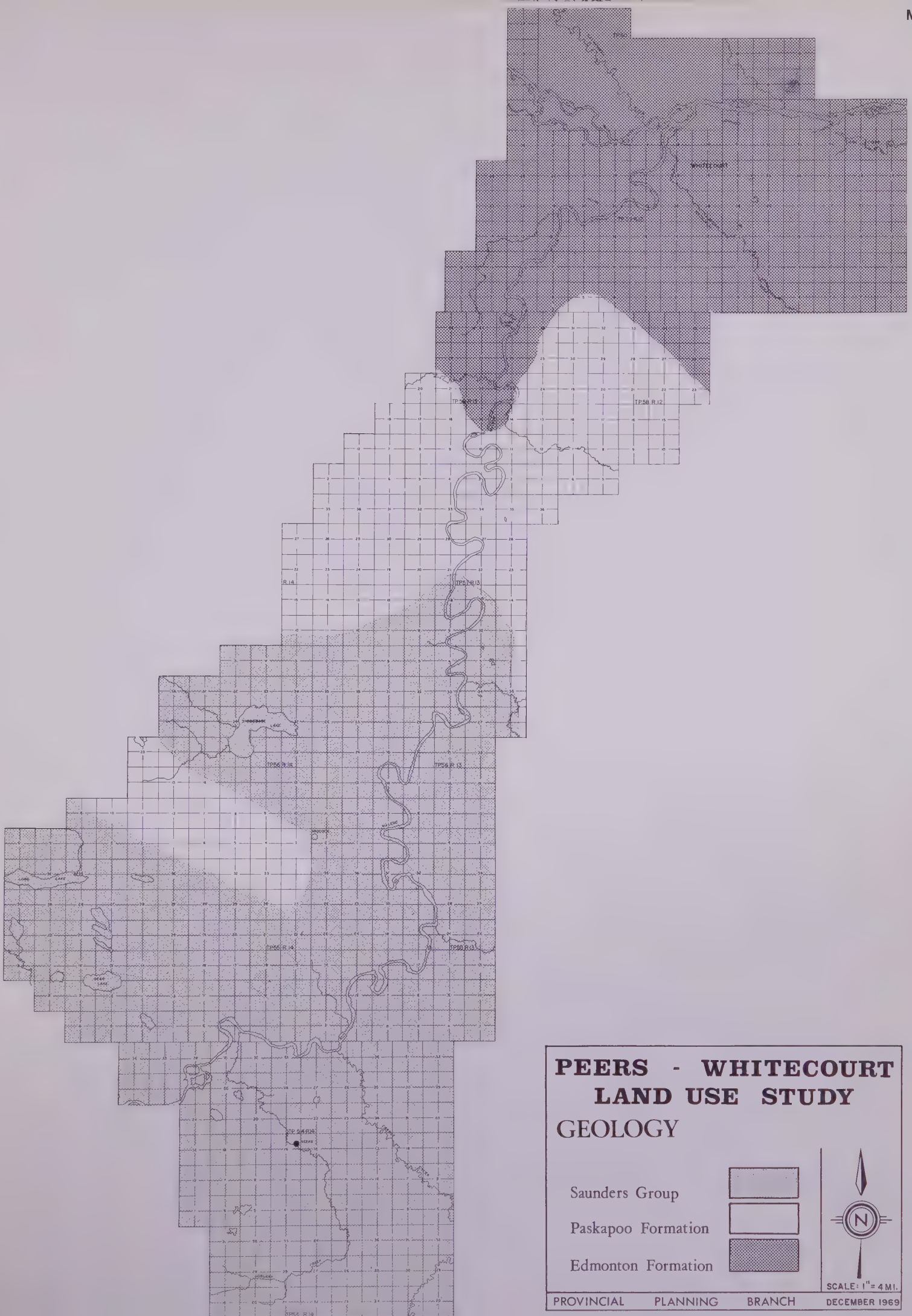
The Edmonton formation is primarily characterized by bentonitic clays or shales; some sandstone is present and it is bentonitic as well. Outcrops of this material are usually grey in color primarily because of the bentonitic clay particles. A red banded effect also occurs when the clay combines with ironstone in nodules which weather to a reddish brown in color. Added to this is the presence of small amounts of greenish carbonaceous shale and an even smaller proportion of conglomerate.

The Paskapoo formation was also deposited in fresh water circumstances and is principally shales and sandstones. Large layers of sandstones appear particularly in the basal Paskapoo. This is especially evident in the high points of the study area, Whitecourt Mountain and Shiningbank Ridge. The remainder of this area has been eroded past this level although it is assumed that the sandstones were equally distributed throughout. There are also small amounts of siliceous limestone and thin layers of coal in evidence in this formation.

The Saunders group is merely a mixture of the massive sandstones of the Paskapoo and the bentonitic clays and shales of the Edmonton formation. There is also some evidence of ash beds as well as minor deposits of coal.

(b) Topography

The topography of the Peers-Whitecourt area is extremely varied in form. There are two dominant topographic features in the area, the flood plain of the

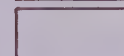


PEERS - WHITECOURT LAND USE STUDY GEOLOGY

Saunders Group



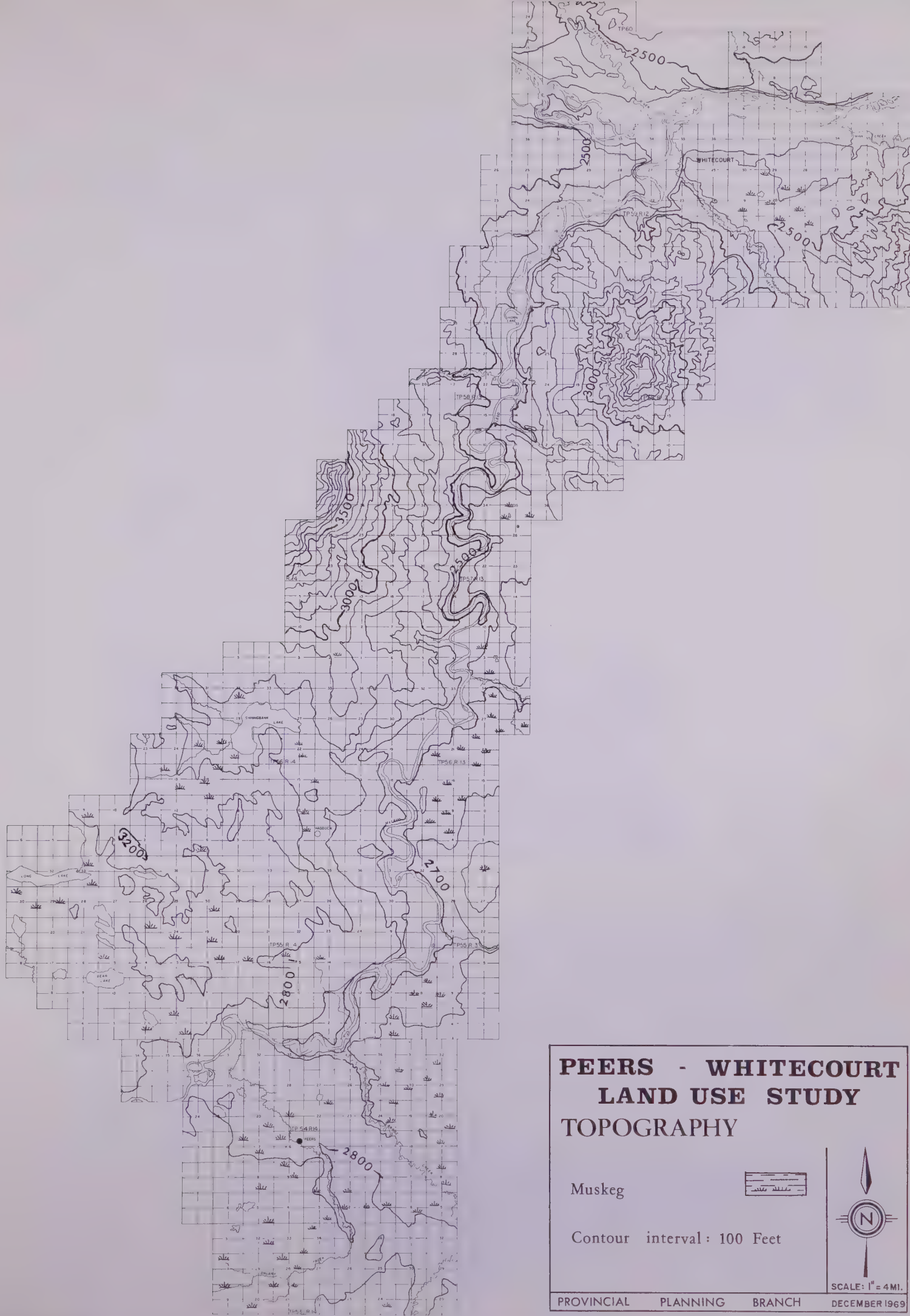
Paskapoo Formation



Edmonton Formation

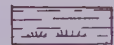


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PEERS - WHITECOURT LAND USE STUDY TOPOGRAPHY

Muskeg

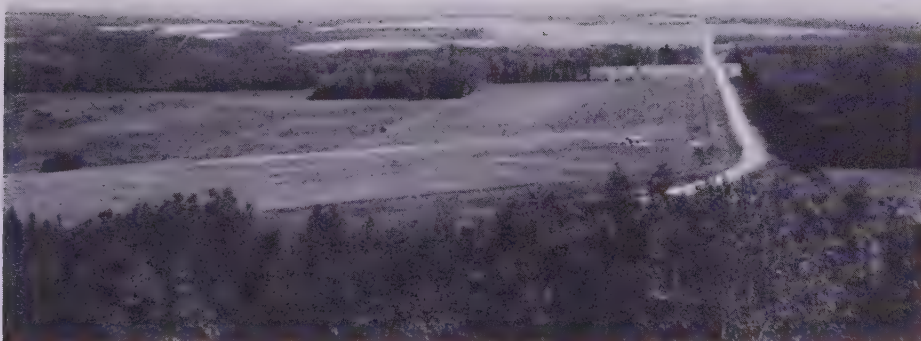
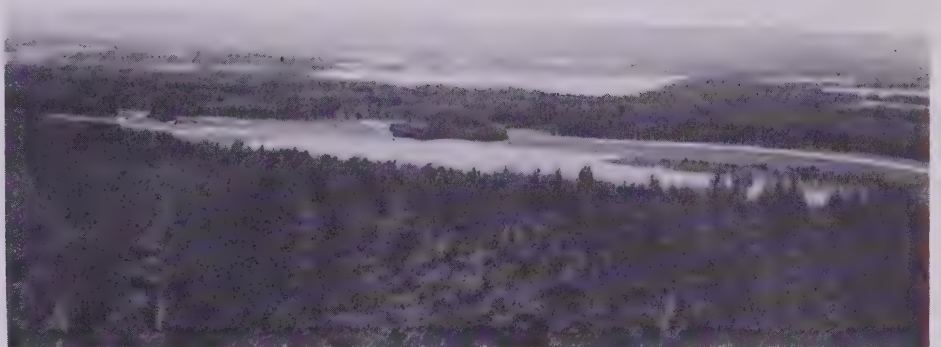


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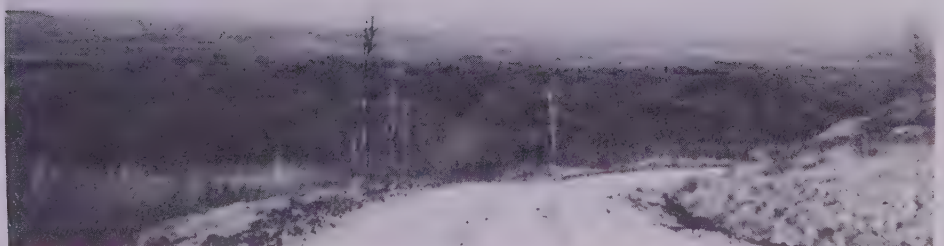
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Looking north from
Shiningbank Tower,
Shiningbank Lake in
background



Looking east from
Shiningbank Tower –
typical landscape of
study area

View north from
Whitecourt Mountain



McLeod River and the high ridges bordering the area.

The flood plain itself is a result of the McLeod River in an earlier form. A post glacial phenomena, the river as it once existed cut a wide swath through the Edson-Peers area. The area immediately south of Whitecourt was of firmer material and a narrower river channel resulted. At present, the McLeod River has reached "old age" with respect to the erosion cycle. Lateral cutting is dominant. There is some evidence of aggrading near the mouth of the McLeod. The river itself occupies only a small part of the valley and is flowing on its own alluvium at present. A well developed meandering pattern best describes the river course with oxbows and cut-offs in evidence throughout. The McLeod has few tributaries, another symptom of this age of erosion.

The high ridges bordering the flood plain are former river banks. These are especially evident in the northern half of the area. The difference in elevation between the river bed and the top of both ridges is approximately 1500 feet. Whitecourt Mountain on the east has a height of 3850 feet and Shiningbank Ridge to the west averages near 3800 feet above sea level. The river bottom ranges from 2700 feet above sea level in the south to 2500 feet above sea level where the McLeod joins the Athabasca.

(c) Soils

The vast majority of the soils of the Peers-Whitecourt area are classified as Grey-Wooded. This type of soil varies to a great extent from the grassland soils for which the prairies are famous. Grey wooded soils are low in humus content and the upper layers have experienced heavy leaching. This results

in the soil being low in fertility and generally poor in the quality and quantity of important physical properties. These factors make grey wooded soils inferior to the brown, black and degraded black soils found in other parts of the Province. An asset to this type of soil is the extra moisture made available because of the heavy forest growth in the area. With proper land management and fertilization, the grey wooded soils can be made productive.

A brief explanation of the soil profile will illustrate the problems involved in the structure of grey wooded soils. The profile consists of a number of different horizons (layers). The surface layer (L horizon) of this soil type is primarily organic matter (fallen leaves and needles) which is underlain by a layer of the same material that has been partly decomposed (H horizon). The L and H, when combined, are usually 1 - 4 inches in depth. This is followed by a layer of humus and minerals (A_h) which has a darker appearance than the previous layers. The A_h layer is never thicker than 2 inches and is much shallower than in the higher quality soils. The next horizon, A_e , is the layer that causes most of the problems in this type of soil. The A_e horizon is low in organic matter and has a platy structure (breaks on a horizontal plane). This layer is responsible for the name of the soil because this is the layer that is grey in color. The color is due primarily to the hundreds of years of leaching as well as the lack of humus in the soil. Rainfall dissolves the chemicals from the decomposed organic matter. These chemicals act upon the clay, silt and sand particles as the water seeps into the soil. The clay is moved downward, leaving a grey material which is a result of the chemical action. The resulting A_e layer is similar to a heavy paste

when wet and becomes very firm and hard when dry. When cultivated, the A_e horizon and all higher layers are exposed. The tone of grey within the soil indicates the degree to which leaching has taken place.

The B_t horizon consists of clays and other minerals leached out of the A_e horizon. Due to the large percentage of clay, when this horizon is dry, it may be harder than the A_e horizon. This condition hampers plant roots from penetrating beyond this layer. Directly under this layer, the B_{ca} horizon or the lime layer as it is commonly known, occurs. It is primarily composed of calcium carbonate (lime) that has moved down from the upper layers. The removal of lime from the upper layers has allowed the acids and other chemicals remaining in the upper layers to cause extreme damage to these higher horizons. This is another reason for the generally poor quality of the grey wooded soils.

The final horizon, the "C" layer, is composed of the original material from which the soil developed. This layer is almost unaltered from its original form.

In a summary of research done on grey wooded soils, Dr. J. A. Toogood* attempts to determine the value of this type of soil for agricultural pursuits. "In their virgin state, they have several faults: a low humus content, frequently a sulphur deficiency, low levels of available nitrogen and phosphorus and poor physical qualities. These soils pulverize easily. This leads to problems of erosion, soil crusting and poor tilth. Experiments at Breton Plots and other experimental locations, and the experience of many good farms in the area have

*Head, Department of Soil Science, The University of Alberta, Edmonton, Alberta.

shown that under good management many grey wooded soils can be improved and made to produce good yields."³

The grey wooded soils within the study area are primarily of the Hubalta series. They are moderately well drained and are developed on till. Surface stones are mainly quartzites. These soils are usually associated with undulating and rolling topography.

Alluvial soils are found along the McLeod and Athabasca Rivers. They form an undifferentiated complex, and are classified primarily on the basis of their parent material. Sandy loam and silty loam are commonly encountered. Gravel is often found near the surface. Alluvial soils lack distinct horizon development.

The highest rated soils within the study area are chernozemic and are of the High Prairie Series. These soils are found in the northern part of the study area immediately south of the Athabasca River. The parent material of these soils is alluvium, and they are classified as greyed dark grey to greyed black.

Much of the southern area around Peers is covered by organic soils. These are primarily of the fickle mesic humic complex. The organic soils are found in two series. The Eaglesham series is characterized by an accumulation of sedge peat and are found in areas of depressional topography. The Kenzie series soils are characterized by an accumulation of sphagnum peat.

Many other soils series are found within the study area, but the above are the most common.

³J. D. Lindsay and W. Odymsky, Soil Survey of Buck Lake and Wabamun Lake Areas, Alberta Soil Survey Report No. 24, 1968. p. 71.

An analysis of the soils in the Peers-Whitecourt area, using criteria concerning the properties of each type of soil and the topography of the area involved, has been undertaken in order to produce a soil rating for each quarter section of land. (Map P Soil Rating is located in the section on agriculture.) The range of ratings is as follows: Very Good, Fairly Good, Fair, Poor-Wet. It is worth noting that the majority of the soils are rated Fairly Good. In terms of the soil rating, this land is marginal arable land. It can support arable crops if used efficiently, although the yields will not be as high as areas with better climatic conditions.

(d) Hydrology

Approximately 3 per cent of the study area is covered by water. The Athabasca flows for 15 miles across the northern portion. The river drains an area of approximately 7,300 square miles before reaching Whitecourt. It originates in the Rocky Mountains south of Jasper and terminates at Lake Athabasca in northeastern Alberta. The river has its peak flow in June and July. The discharge volume at Whitecourt during these months averages 25,000 cubic feet per second. The minimum water flow occurs in March when the discharge drops to 1,500 cubic feet per second. The river is ice bound from November to May.

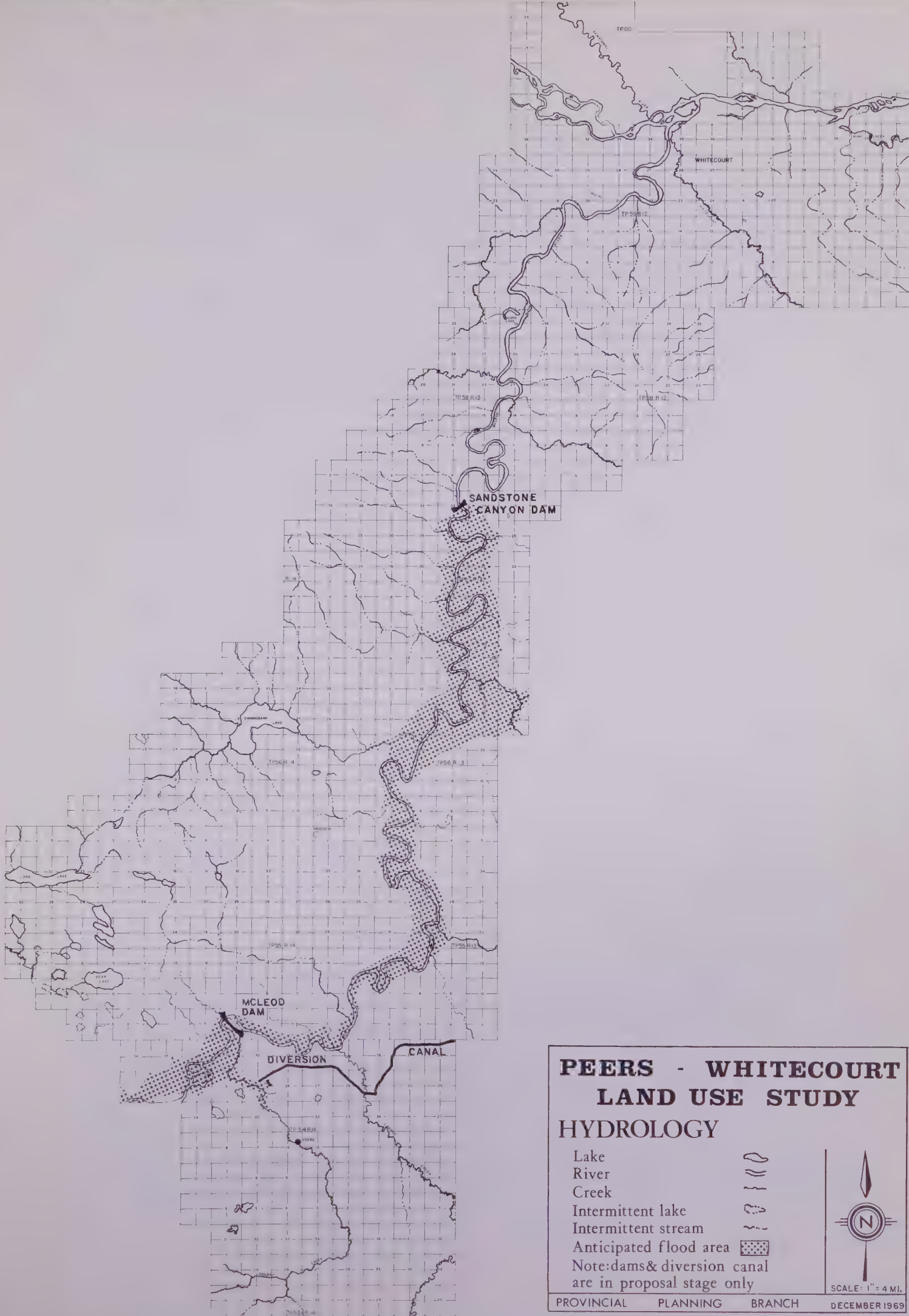
The McLeod River originates in the Rocky Mountains southwest of Edson and flows some 72 miles through the study area until it discharges into the Athabasca River at Whitecourt. It drains an area of approximately 15,000 square miles. Its peak flow is reached during June and July with the minimum flow occurring between February and March. The maximum average water flow at

Whitecourt is 3,520 cubic feet per second with a minimum of 150 cubic feet per second. The river is usually ice bound between November and April.

Approximately 90 per cent of the study area falls within the drainage basin of the McLeod River. Several small creeks in the north, including the Sakwatamau River drain into the Athabasca. Several small lakes also exist within the area, but they are relatively insignificant. (Their recreational potential will be discussed later in the study.)







In the future, the water resource potential may play an important role in the development of the study area and region. Two major dams have been proposed for the McLeod River south of Whitecourt. The proposed Sandstone Canyon dam site is located approximately 15 miles south of Whitecourt. It would provide flood control for the Town of Whitecourt and the proposed MacMillan Bloedel pulp mill. The dam would be 170 feet high and create a 27 mile lake stretching southward as far as the Peers bridge on Highway 32. The water level would be raised to the 2,600 foot contour and necessitate the relocation of several farm families. Much of the land in the involved area is privately owned and would have to be purchased. The reservoir created would have limited value for recreation because of the fluctuating water level.

The second proposal is that of the McLeod dam, (January Creek Site) to be located in the southwestern portion of the study area. This dam is part of the extensive P.R.I.M.E. proposals for Alberta. A diversion canal will be built from the McLeod River, via January Creek, to Chip Lake if the project is approved. This dam will have little effect on the study area, but a considerable amount of adjacent farmland will be flooded.



PEERS - WHITECOURT LAND USE STUDY

HYDROLOGY

- Lake 
 - River 
 - Creek 
 - Intermittent lake 
 - Intermittent stream 
 - Anticipated flood area 
- Note: dams & diversion canal are in proposal stage only



SCALE: 1" = 4 MI.

(e) Climate

Climate is probably the most important factor to be considered in this section on physical geography. It is the climatic conditions which limit the type of vegetation that can exist. The Peers-Whitecourt area is in a zone classified as Boreal. This indicates an average temperature of 50 degrees Fahrenheit or more for a period of one to three months of the year. In addition, this climate experiences long severe winters and short summers that produce a wide variety of conditions and generally low amounts of precipitation. The Whitecourt weather station, located in the town and operated by the Department of Transport, is the only source of statistics within the area. However, the Edson station experiences climatic conditions similar to the Peers area. Therefore the climatic data from both Whitecourt and Edson are used to illustrate the weather conditions prevailing in the study area.

A classification system relating to climatic effects on agricultural products has been established by W. Earl Bowser (Canada Department of Agriculture) in co-operation with the Alberta Soil Survey. Under this classification, a rating of 3H has been assigned to the study area. A 3H category is interpreted as "Areas where the amount of precipitation has usually been adequate, but where it is not considered practical to grow wheat because of damaging frosts."⁴ Bowser further indicates that areas with frost free periods of less than 60 days should not be considered for any crop other than hay. Close examination of the figures provided in

⁴W.E. Bowser, Agro-Climatic Areas of Alberta, Canada Department of Agriculture and Alberta Soil Survey, 1967.

Table I (frost data) shows that the average from both meteorological stations is below the 60 minimum suggested by Bowser. It has been suggested that the flats of the McLeod Valley immediately north of Peers have a longer frost free period. It is possible that this is caused by the drop from the flats to the water level which is of sufficient depth to cause the cold air to drain to the river level. The farmers in the area feel that lack of crop damage is due to fog being created by the river during these cold spells. The fog rises to the flats and acts as a blanket for the crops. This is said to be especially true in June, a time normally considered to be in the frost period.

According to the Agro-climatic map, the ideal total precipitation per annum is 16 - 18 inches. Both Edson and Whitecourt experienced an annual precipitation average of just over 20 inches. This is not considered a hindrance to agricultural production. The monthly and annual precipitation averages for Edson and Whitecourt are found in Table II. A summary of the daily, monthly and annual temperature averages located in Table III give some indication of the variations experienced in this area.

TABLE I

Frost Data	Whitecourt	Edson
Average last spring frost	June 22	June 21
Earliest last spring frost	June 2	May 13
Latest last spring frost	July 4	July 15
Average first fall frost	August 15	August 19
Earliest first fall frost	July 23	July 16
Latest first fall frost	Sept. 5	Sept. 23
Average frost free period	54 days	59 days
Longest frost free period	79 days	127 days
Shortest frost free period	24 days	4 days

TABLE II

MEAN MONTHLY PRECIPITATION

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Whitecourt Rain	0.01	0.01	0.03	0.46	1.76	2.87	3.86	3.33	1.26	0.43	0.16	0.08	14.28
Snow	11.1	9.7	7.8	7.4	0.9	0.1	0.0	0.0	0.5	6.4	6.9	9.5	60.3
Total	1.12	0.99	0.81	1.20	1.8	2.88	3.86	3.33	1.31	1.07	0.85	1.04	20.31
Edson Rain	0.02	0.02	0.07	0.38	1.97	3.59	3.66	3.16	1.48	0.37	0.17	0.09	14.98
Snow	9.8	7.3	8.8	6.8	0.8	0.0	0.0	0.0	1.5	6.1	8.6	9.0	58.7
Total	1.00	0.75	0.95	1.06	2.05	3.59	3.66	3.16	1.63	0.98	1.03	0.99	20.85

TABLE III

MEAN DAILY TEMPERATURES

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
EDSON													
Mean Daily	8.4	13.8	23.6	37.2	48.2	53.9	58.7	56.2	48.7	38.4	23.5	12.5	35.3
Max.	18.7	26.1	35.9	50.2	62.3	67.5	73.0	90.6	62.6	51.2	33.4	21.5	47.8
Min.	-1.9	1.4	11.2	24.1	34.0	40.2	44.4	41.8	34.8	25.5	13.6	3.4	22.7
WHITECOURT													
Mean Daily	5.0	10.5	21.8	36.9	48.3	54.4	59.7	56.5	48.5	38.0	21.7	8.8	34.2
Max.	14.8	22.8	33.5	49.2	62.0	66.9	72.9	69.2	60.9	50.0	31.7	18.5	46.1
Min.	-4.8	-1.8	10.1	24.6	34.6	41.9	46.5	43.8	36.1	26.0	11.7	-0.9	23.3

- 20 -

TEMPERATURE AND PRECIPITATION TABLES FOR PRAIRIE PROVINCES

Meteorological Branch - Department of Transport

WHITECOURT DATA - a ten year period 1951 - 60, adjusted to a thirty year period 1931 - 1960

EDSON DATA - thirty year period 1931 - 1960

(f) Vegetation

Over eighty percent of the Peers-Whitecourt area is covered by woodlands. Based upon the land use map compiled by the Canada Land Inventory, (Table IV) forty-seven percent is productive woodland and thirty-six percent non-productive. The majority of the productive woodland is found within the green zone (GREEN AREA) as outlined in Map "L" Settlement Areas. Productive woodland as defined by the C.L.I. is "Tracts of wooded land on which the crown cover or canopy density exceeds twenty-five percent and on which the bulk of the trees could be used as sawlogs, pulpwood, fence posts or fuel wood of commercial value at the time of the photography or field work."⁵ The majority of this is deciduous, in particular, aspen poplar (*Populus tremuloides*). Generally this species grows to an average height of forty feet but can go as high as ninety feet. The mature aspen poplar of the study area grows to an average height of sixty-five feet. This species is noted for its ability to grow extremely fast in relation to that of other tree species. The aspen poplar has a slender trunk and is supported by a shallow system of widely spread roots. Another form of poplar, the balsam (*Populus balsamifera*), is also evident in various sectors of the study area. While this species is generally not as large as the aspen in the majority of situations, the Alberta variety exceeds the aspen poplar in size at maturity. One of the prime characteristics of the balsam poplar is its intolerance of shade, a characteristic common to aspen poplar as well. Consequently, the balsam poplar is usually found in abandoned farmland, burned-over areas or river banks.

⁵A Guide In The Classification of Land Use for the Canada Land Inventory
Federal Department of Energy, Mines and Resources, 1968.

Of the coniferous trees in the area, the most evident is the lodgepole pine (*Pinus contorta*, var. *latifolia*). This type of tree grows in a variety of conditions but is usually found between altitudes of 2000 and 5000 feet. It is most often found in burned-over areas. There are also groups of the spruce family in evidence. The white spruce (*Picea glauca*), in particular, is found in moderately large quantities in the northern part of the area near Whitecourt Mountain. This species averages eighty feet in height and two feet in diameter, it has a shallow root system and is also found most often in burned-over areas. The other species, the black spruce (*Picea mariana*), can be found in small groups in the muskeg sectors of the study area.

Non-productive woodlands are classed as tracts of land where bush and tree shrub cover exceeds 25 percent. This includes trees which are stunted in growth (less than thirty feet in height at maturity) and bushes, neither of which are generally of any commercial value. Willows (*Salix* spp), saskatoon bushes (*Amelanchier alnifolia*) and dwarfed conifers are the most prevalent species in the study area. Black spruce prevail in much of the muskeg. Land which is actively grazed is also classed as non-productive woodland even if the tree cover exceeds 25 percent.

The remainder of the study area is primarily cleared. Forage crops and pasture cover seven percent of the land while six percent of the area is in cropland.

Map D Vegetation, illustrates the distribution of species throughout the study area. The areas marked in red were destroyed by forest fires in 1968.



PEERS - WHITECOURT LAND USE STUDY VEGETATION

Pine	P
Spruce	S
Deciduous	D
Bushland	B
Cleared Land	C
Muskeg or treed Muskeg	



SCALE 1" = 4 MI.
DECEMBER 1969

(g) Fauna

The wildlife habitat of the study area has been relatively undisturbed by man because of the lack of development within the study area, itself, and the vast expanse of land to the west. Ungulates are still very much in existence in the area, especially around Whitecourt. (See Ungulate Capability, Map I). Mule deer, white-tailed deer, wapiti (elk) and a sporadic occurrence of moose are the prime ungulate species present in the area. Bears are also in evidence to some degree.

The variety of fish found in the area is somewhat limited. Shiningbank Lake is becoming well known locally for walleye and yellow perch. Long Lake supports a healthy quantity of Northern pike. The McLeod River is said to support Dolly Varden trout, Rocky Mountain whitefish and Arctic grayling in the southern sector of the area while the northern sector around Whitecourt supports yellow perch, Northern pike and walleye to varying degrees.

(Aspects of wildlife will be discussed in greater depth in the section on recreation.)

VII CANADA LAND INVENTORY

(a) Present Land Use

The present land use classification makes it possible to formulate accurate estimates regarding the extent and location of land in various categories of use. The classification shows areas where present use is not compatible with the other Canada Land Inventory capability classifications. It also shows land that is not being utilized to the full extent of its capability.

Since the classification is fairly broad, it was possible to do the mapping from aerial photographs. The most important aspect of the land use is the breakdown between lands that are intensively cultivated and those that are in pasture or less intensive use.

Present land use for the study area is shown on Map E. The information has been compiled from aerial photographs taken between 1958 - 64. Although this information is not up to date, it approximates the existing pattern of land use.

The present land use has been summarized by townships and ranges in Table IV.

(b) Soil Capability for Agriculture

This classification system was established to analyze the potential of the soil of an area in terms of its ability to support various forms of agricultural production. The primary source of information for this capability is the preliminary soil survey conducted by the Research Council of Alberta. Within the classification system, seven major categories of mineral soils were established. Each of these 'classes' has a variety of limitations with each limitation varying in degree

PEERS - WHITECOURT LAND USE STUDY PRESENT LAND USE

from
CANADA LAND INVENTORY



Scale: 1" = 3 Mi

PROVINCIAL PLANNING BRANCH DECEMBER 1969



LEGEND :

- Urban Areas. Built-up area of cities, towns, villages, hamlets, and settlements, such as manufacturing plants and railway yards.
- Mines, Quarries, and Gravel Pits.
- Outdoor Recreation.
- Cropland. Annual field crops, associated fallow and land in the process of being cleared.
- Improved Pasture & Forage Crops. Grazing land having been improved by various means, notably cultivation, for grazing. Land used for the production of hay and forage crops. Rough pasture having been used as hay land.
- Unimproved Pasture & Rangeland. Natural grassland, abandoned farmland, and woodland (i.e. up to 25 % tree cover).
- Productive Woodland. Land bearing trees over 20 feet in height and have a canopy cover occupying more than 30 per cent of the area. Artificially restocked and planted areas are included regardless of age.
- Non-Productive Woodland. Land bearing tree or bush growth which is under 20 feet in height and which has a canopy cover occupying less than 30 per cent of the area. This category consists largely of cut-over or burnt-over land which shows no evidence of grazing.
- Swamp, Marsh & Bog.

Compiled from aerial photography taken in 1958 - 1964.

TABLE IV

PRESENT LAND USE

(Compiled from Aerial Photography taken in 1958 - 1964)

LEGEND

UA	Urban Areas	IP	Improved Pasture and forage crops
GP	Mines, quarries and gravel pits	UP	Unimproved pasture and forage crops
OR	Outdoor recreation	PW	Productive Woodland
H	Horticulture	NPW	Non-productive Woodland
OV	Orchards and vineyards	S	Swamp, marsh and bog
C	Cropland	W	Water surfaces

	W		NPW		PW		UA		C		S		GP		UP		IP		TOTAL
DESCRIPTION	AREA (Acres)	%	AREA	%	AREA	%	AREA	%	AREA	%	AREA	%	AREA	%	AREA	%	AREA	%	AREA
Tp60-R13-W5	225	9	310	12	1970	77	-	-	-	-	-	-	-	-	55	2	-	-	2560
Tp60-R12-W5	845	6	6120	46	5910	44	-	-	240	2	-	-	15	-	310	2	-	-	13440
Tp60-R11-W5	815	11	3260	42	2350	30	-	-	890	12	-	-	-	-	290	4	75	1	7580
Tp59-R13-W5	140	2	3165	38	4785	57	-	-	185	3	-	-	-	-	-	-	45	-	8320
Tp59-R12-W5	860	4	4865	21	13435	58	820	4	2265	10	75	-	-	-	340	2	380	1	23040
Tp59-R11-W5	-	-	9180	40	10750	47	60	-	1475	6	220	1	-	-	845	4	510	2	23040
Tp58-R14-W5	-	-	285	15	1635	85	-	-	-	-	-	-	-	-	-	-	-	-	1920
Tp58-R13-W5	690	4	3430	17	14790	75	-	-	420	2	15	-	10	-	350	2	135	-	19840
Tp58-R12-W5	-	-	7310	46	8555	53	-	-	60	0.5	-	-	-	-	55	0.5	20	-	16000
Tp57-R14-W5	-	-	2770	23	8795	72	-	-	305	3	-	-	-	-	140	1	150	1	12160
Tp57-R13-W5	550	3	7315	37	10420	53	-	-	665	3	70	-	-	-	535	3	285	1	19840
Tp56-R15-W5	30	-	2430	24	7320	72	-	-	120	1	140	1	-	-	100	1	100	1	10240
Tp56-R14-W5	1185	5	6810	30	10240	44	-	-	3430	15	190	1	-	-	725	3	460	2	23040
Tp56-R13-W5	745	4	7630	46	5775	35	-	-	1125	8	230	1	-	-	540	3	595	3	16640
Tp55-R15-W5	1630	8	6045	29	10410	49	(OR-15)	-	550	3	1680	8	-	-	525	2	265	1	21120
Tp55-R14-W5	390	2	6875	30	9595	42	-	-	2550	11	120	-	20	-	2365	10	1125	5	23040
Tp55-R13-W5	675	4	6135	40	6820	44	-	-	625	4	340	2	-	-	385	3	380	3	15360
Tp54-R15-W5	220	4	1765	28	755	12	20	-	1280	20	20	-	-	-	1815	28	525	8	6400
Tp54-R14-W5	350	2	11700	51	4705	20	95	-	1115	5	1465	6	-	-	2530	11	1080	5	23040
Tp54-R13-W5	30	-	4720	61	1230	16	-	-	65	1	480	6	-	-	665	9	490	7	7680
Tp53-R14-W5	-	-	6905	60	2440	21	-	-	220	2	375	4	15	-	1200	10	365	3	11520
Tp53-R13-W5	-	-	1400	36	1460	38	-	-	340	9	5	-	-	-	485	13	150	4	3840
STUDY AREA TOTAL	9380	3	110425	36	144145	47	995 (OR-15)	-	17925	6	5425	1	60	-	14255	5	7135	2	309760

of severity. These limitations or hazards are referred to as subclasses.

The classes, ranging from 1 to 7 (with 1 being the most productive), are determined by the intensity of the occurrence of the subclasses. The result is information on the potential of the soil itself, and in the case of poorer soils, the types of conservation methods required to improve the quality of the land.

A group of assumptions was formulated as a guide to the field staff involved in classification. A few of the more significant are as follows:

- (i) The soil capability is based upon climate, soil characteristics, limitation involving agricultural use, and the potential capacity for producing common field crops.
- (ii) Modern farming practices are assumed.
- (iii) Soils are rated according to a higher classification if the limitations involved can be overcome with the resources available for the average farms.
- (iv) "Distance to market, kind of roads, location, size of farms, characteristics of land-ownership and cultural patterns, and the skill or resources of individual operators are not criteria for capability groupings."⁶

The Agriculture Capability map included in this study indicates the classification for the Peers-Whitecourt area.

⁶Canada, Department of Forestry, Soil Capability Classification for Agriculture, C.L.I. reprint No. 2, 1965, p. 5.

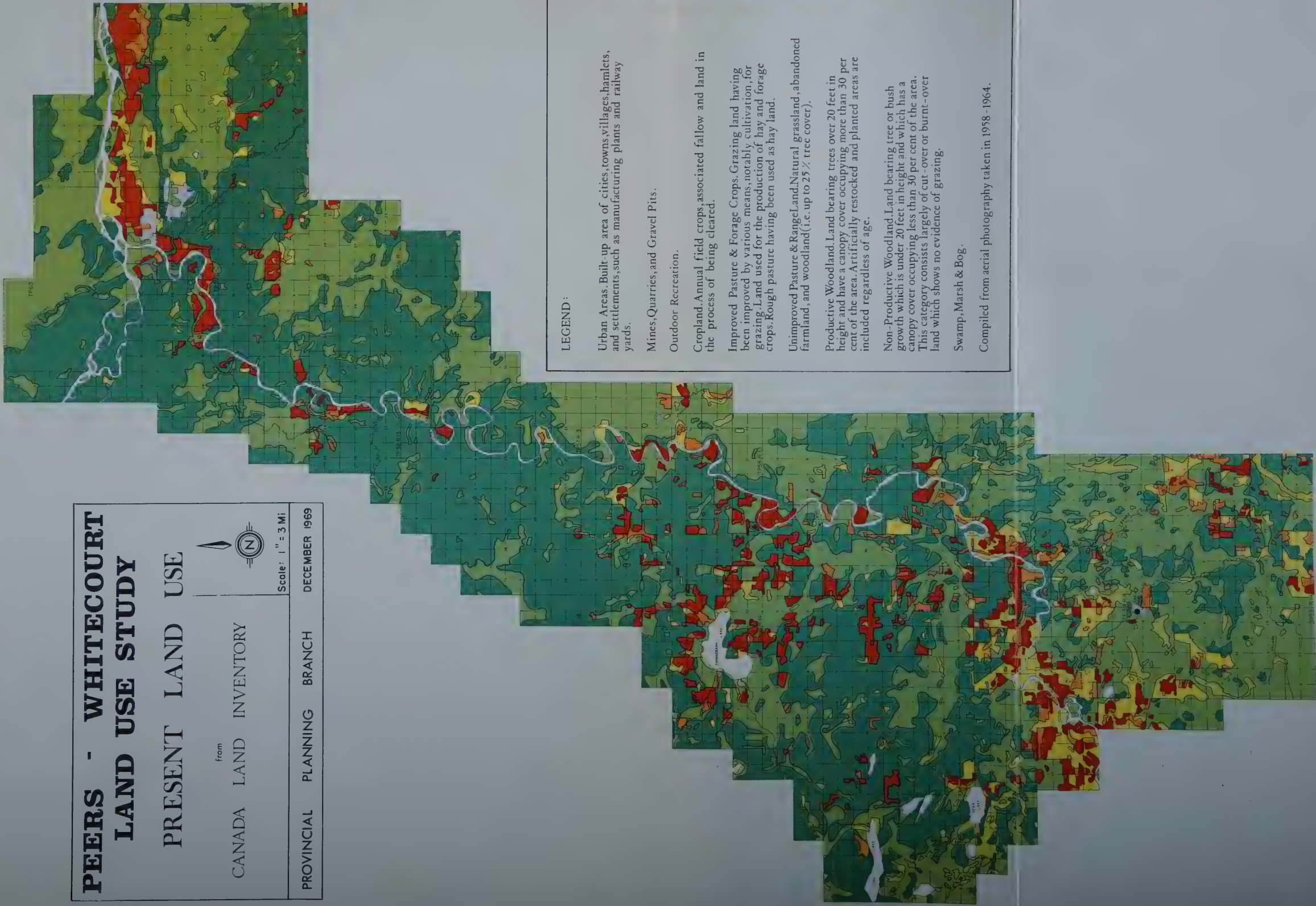
PEERS - WHITECOURT LAND USE STUDY PRESENT LAND USE

from
CANADA LAND INVENTORY



Scale: 1" = 3 Mi

PROVINCIAL PLANNING BRANCH DECEMBER 1969



LEGEND :

- Urban Areas. Built-up area of cities, towns, villages, hamlets, and settlements, such as manufacturing plants and railway yards.
- Mines, Quarries, and Gravel Pits.
- Outdoor Recreation.
- Cropland. Annual field crops, associated fallow and land in the process of being cleared.
- Improved Pasture & Forage Crops. Grazing land having been improved by various means, notably cultivation, for grazing. Land used for the production of hay and forage crops. Rough pasture having been used as hay land.
- Unimproved Pasture & Range Land. Natural grassland, abandoned farmland, and woodland (i.e. up to 25 % tree cover).
- Productive Woodland. Land bearing trees over 20 feet in height and have a canopy cover occupying more than 30 per cent of the area. Artificially restocked and planted areas are included regardless of age.
- Non-Productive Woodland. Land bearing tree or bush growth which is under 20 feet in height and which has a canopy cover occupying less than 30 per cent of the area. This category consists largely of cut-over or burnt-over land which shows no evidence of grazing.
- Swamp, Marsh & Bog.

Compiled from aerial photography taken in 1958 - 1964.

(c) Forestry Capability

This classification system is based upon the ability of a unit of land to grow commercial timber. Again, the classes range from "1" to "7" with Class "1" being most favorable and Class "7" having no ability to produce a stand of commercial timber. The classification is based upon three ratings: Capability Class, Capability Subclass and Indicator Species. In this study, analysis is concentrated on the first two of these ratings. Also determined in the classification is the productivity per acre. The range is expressed in gross merchantable cubic-feet volume down to a minimum diameter of four inches D.B.H. (See Table V). The prime considerations within the subclass were capability, climate, soil moisture and permeability, and depth of the rooting zone.

When this system of analysis was being developed, each province experienced unique occurrences. In Alberta the highest rating a forest can achieve is Class "3"; Class "1" and "2" are restricted because of the Alberta climate. Class "4" is the dominant classification within the province, the major limitation being a lack of sufficient soil moisture during the growing season.

TABLE V
PRODUCTION REQUIRED BY CLASS

<u>Class</u>	<u>Cubic feet/acre/annum</u>
1	111 -
2	91 - 110
3	71 - 90
4	51 - 70
5	31 - 50
6	11 - 30
7	- 10

(d) Outdoor Recreation Capability

This sector of the Canada Land Inventory is directed at providing "a reliable and authentic overview of the quality, quantity, and distribution of natural recreation resources within the settled parts of Canada."⁷ The inventory provides "basic information to aid governments in the formulation of policies and programs related to their functions of promotion, development and regulation of lands for recreation."⁸

"Land is classified according to its natural capability to provide opportunity for recreation."⁹ Thus, major modification of land, location and present access development, and present land use and/or management are not considered in the ranking of each recreational unit. However, where there is a permanent major modification of the resource base, the land is evaluated in its present state. "Land presently committed to intensive urban or industrial use is normally not classified."¹⁰

The land is assessed and assigned one of seven classes on the basis of the intensity of use of current popular outdoor recreation activities that it can support. Class 1 has the highest capability, Class 7 the lowest and there is a suitable gradation in the classes between 1 and 7.

Following the numerical rating, land areas are assigned letters symbolic of certain subclasses. These subclasses indicate the types of recreation which are

⁷ Canada, Department of Forestry and Rural Development, Field Manual, Land Capability Classification for Outdoor Recreation, Canada Land Inventory, A.R.D.A., June, 1967, p. 2

⁸ Ibid. p. 3

⁹ Ibid. p. 4

¹⁰ Ibid. p. 4

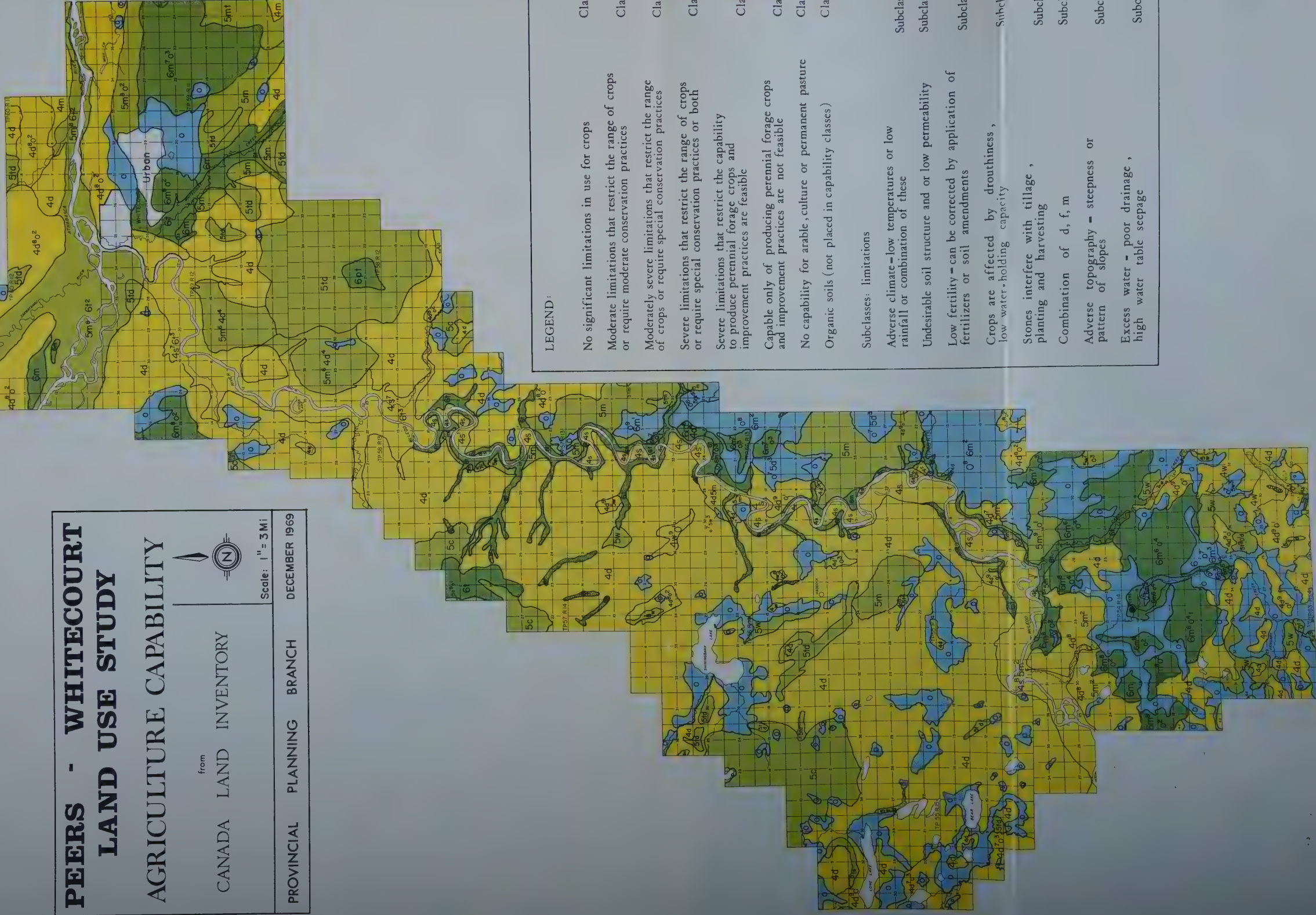
PEERS - WHITECOURT LAND USE STUDY AGRICULTURE CAPABILITY

from
CANADA LAND INVENTORY



Scale: 1" = 3 Mi

PROVINCIAL PLANNING BRANCH DECEMBER 1969



LEGEND:

No significant limitations in use for crops

Moderate limitations that restrict the range of crops or require moderate conservation practices

Moderately severe limitations that restrict the range of crops or require special conservation practices

Severe limitations that restrict the range of crops or require special conservation practices or both

Severe limitations that restrict the capability to produce perennial forage crops and improvement practices are feasible

Capable only of producing perennial forage crops and improvement practices are not feasible

No capability for arable, culture or permanent pasture

Organic soils (not placed in capability classes)

Subclasses: limitations

Adverse climate—low temperatures or low rainfall or combination of these

Undesirable soil structure and or low permeability

Low fertility - can be corrected by application of fertilizers or soil amendments

Crops are affected by drouthiness, low water-holding capacity

Stones interfere with tillage, planting and harvesting

Combination of d, f, m

Adverse topography - steepness or pattern of slopes

Excess water - poor drainage,
high water table seepage

Class	1
-------	---

Class 2

Class	3
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
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87	87
88	88
89	89
90	90
91	91
92	92
93	93
94	94
95	95
96	96
97	97
98	98
99	99
100	100

Class 4

Class 7

Class	0
-------	---

Subclass c

Subclass d

Subclass f

Subclass m

Subclass

Subclass

Subclass 1

Subclass

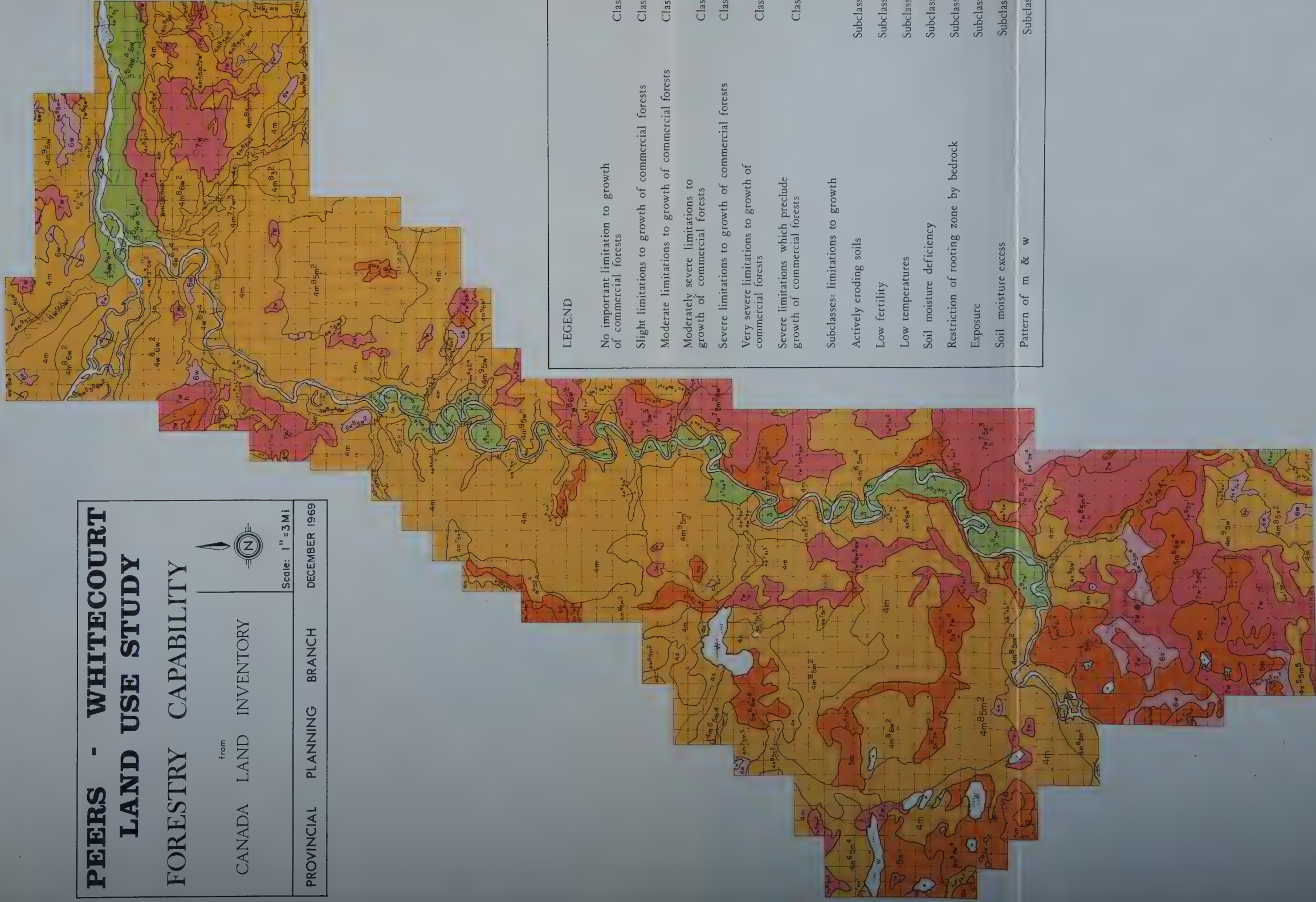
**PEERS - WHITECOURT
LAND USE STUDY
FORESTRY CAPABILITY**

from
CANADA LAND INVENTORY



Scale: 1" = 3 Mi

PROVINCIAL PLANNING BRANCH DECEMBER 1969



LEGEND

No important limitation to growth of commercial forests	Class 1	Class	Subclass e
Slight limitations to growth of commercial forests	Class 2	Class	Subclass f
Moderate limitations to growth of commercial forests	Class 3	Class	Subclass h
Moderately severe limitations to growth of commercial forests	Class 4	Class	Subclass m
Severe limitations to growth of commercial forests	Class 5	Class	Subclass r
Very severe limitations to growth of commercial forests	Class 6	Class	Subclass u
Severe limitations which preclude growth of commercial forests	Class 7	Class	Subclass w
Subclasses: limitations to growth			Subclass x
Actively eroding soils			
Low fertility			
Low temperatures			
Soil moisture deficiency			
Restriction of rooting zone by bedrock			
Exposure			
Soil moisture excess			
Pattern of m & w			

best suited to that particular land unit. Twenty-five subclasses exist, representing the current major uses of land for recreation. A maximum of three subclasses may be indicated for each land unit.

(e) Wildlife - Ungulate and Waterfowl Capabilities

The Wildlife Classification is an attempt to analyze the "diversity of wildlife species, their environmental requirements, and their mobility and other behavioral attributes."¹¹ This field of study is so broad that a division was made into two main groups. The provincial Fish and Wildlife Division is responsible for the ungulate inventory while the Canadian Wildlife Service works on waterfowl capabilities. The classification system is basically the same for both, although the ungulate classification includes the indicator species.

The classification itself follows the outline of assessing capability class and capability sub-class. The capability class "is an expression of the environmental factors that control the number of ungulates or waterfowl that can be produced and supported on a unit of land."¹² The sub-classes are really an indication of the degree of limitations on the land which determine the "class" ratings.

The ability of a particular unit of land to meet the needs of wildlife is the basis for the entire classification. Factors such as sufficient quantity and quality of food, protective cover, and space to meet its needs for survival, growth, and reproduction had to be analyzed before any rating could be assessed.

¹¹ N. G. Perret, Outline of the Canadian Land Capability Classification for Wildlife, Canada Land Inventory, ARDA, 1969, p. 2.

¹² Ibid. p. 2.

Ungulates. The classes are rated on the ability of the land to support wild ungulates. The sub-classes involve the ability of the land to produce suitable food and cover plants. In each unit of land, the species of ungulate capable of being supported by that particular unit is included.

Waterfowl. This classification deals with the ability of a land unit to support or produce waterfowl. The capability class level is determined by the limitations which affect the quality and/or quantity of habitat for waterfowl. The sub-class shows the factors that have helped cause the class rating.

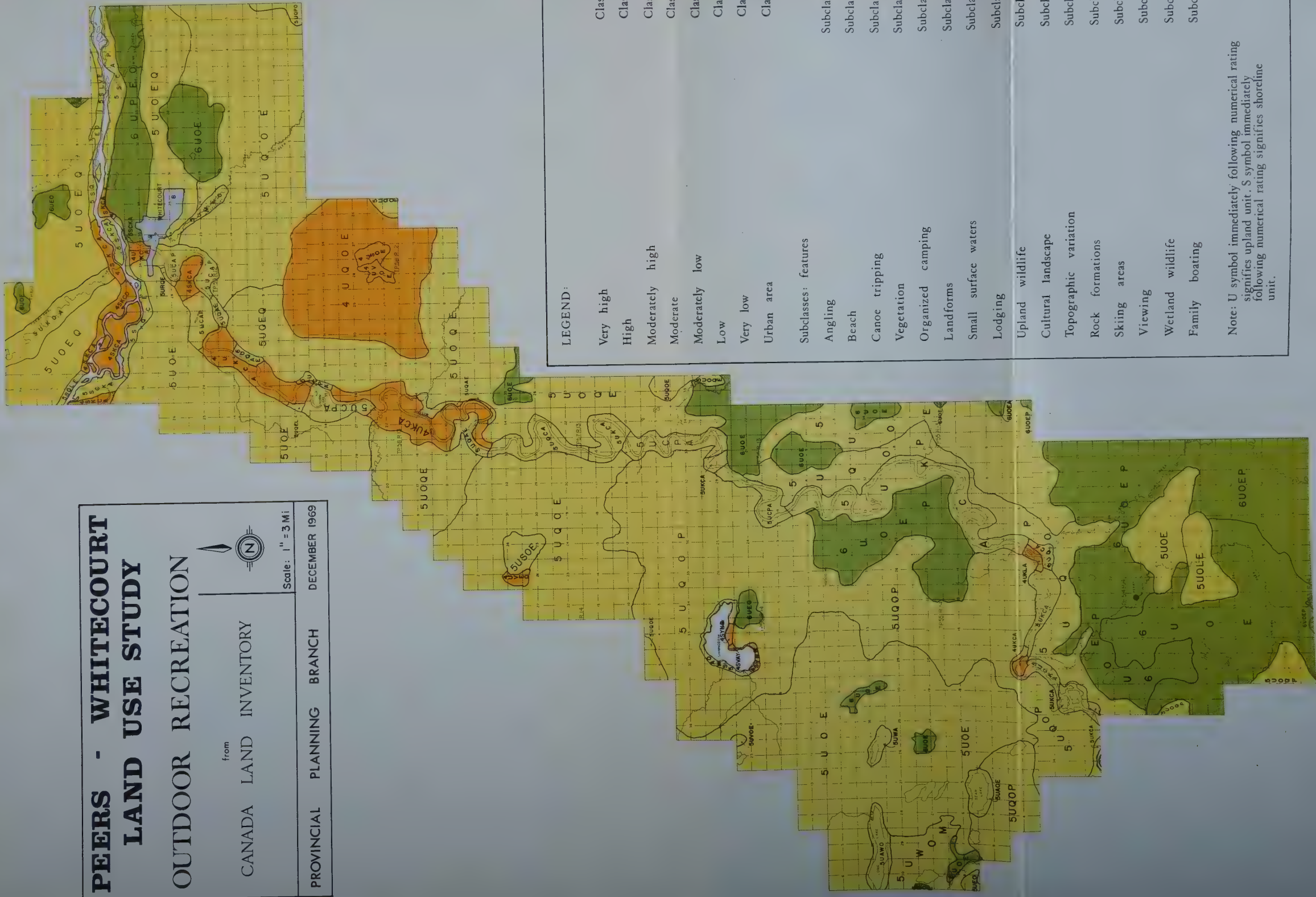
‡ Table VI Page 31 provides a summary of the total areas of each of the capability classifications.

from
CANADA LAND INVENTORY

CANADA LAND INVENTORY

DECEMBER 1969

PROVINCIAL PLANNING BRANCH



1	Class	
2	Class	
3	Class	
4	Class	
5	Class	
6	Class	
7	Class	
8	Class	

Angling	A	Subclass
Beach	B	Subclass
Canoe tripping	C	Subclass
Vegetation	E	Subclass
Organized camping	K	Subclass
Landforms	L	Subclass
Small surface waters	M	Subclass
Lodging	N	Subclass
Upland wildlife	O	Subclass
Cultural landscape	P	Subclass
Topographic variation	Q	Subclass
Rock formations	R	Subclass
Skiing areas	S	Subclass
Viewing	V	Subclass
Wetland wildlife	W	Subclass
Family boating	Y	Subclass

Note: U symbol immediately following numerical rating signifies upland unit. S symbol immediately following numerical rating signifies shoreline unit.

PEERS - WHITECOURT LAND USE STUDY UNGULATES CAPABILITY

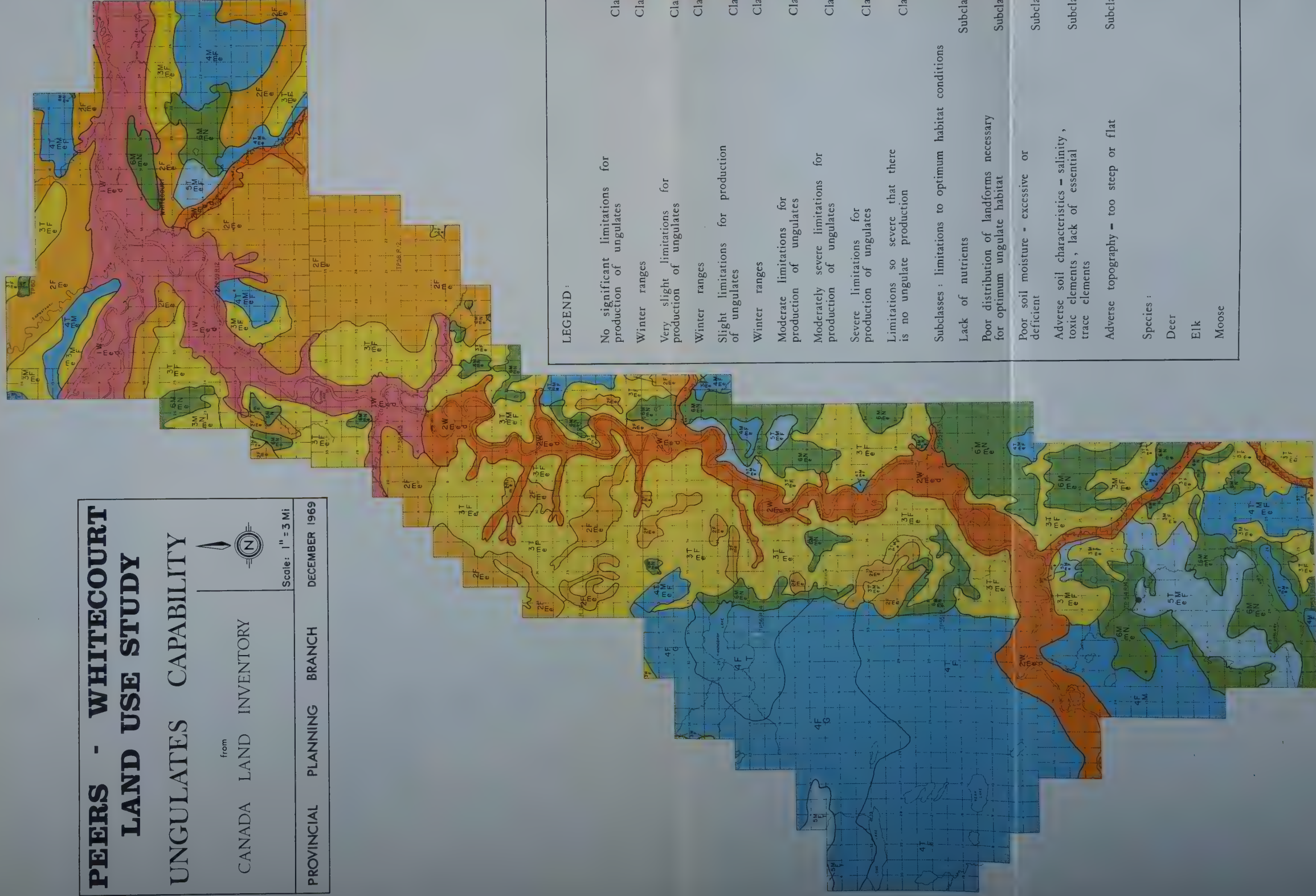
from
CANADA LAND INVENTORY



Scale: 1" = 3 Mi

DECEMBER 1969

PROVINCIAL PLANNING BRANCH



LEGEND :

No significant limitations for production of ungulates	1	Class
Winter ranges	1W	Class
Very slight limitations for production of ungulates	2	Class
Winter ranges	2W	Class
Slight limitations for production of ungulates	3	Class
Winter ranges	3W	Class
Moderate limitations for production of ungulates	4	Class
Moderately severe limitations for production of ungulates	5	Class
Severe limitations for production of ungulates	6	Class
Limitations so severe that there is no ungulate production	7	Class

Subclasses : limitations to optimum habitat conditions

Lack of nutrients

Poor distribution of landforms necessary for optimum ungulate habitat

Poor soil moisture - excessive or deficient

Adverse soil characteristics - salinity, toxic elements, lack of essential trace elements

Adverse topography - too steep or flat

Species :

Deer

Elk

Moose

Subclass

Subclass

Subclass

Subclass

Subclass

Subclass

Subclass

Subclass

Subclass

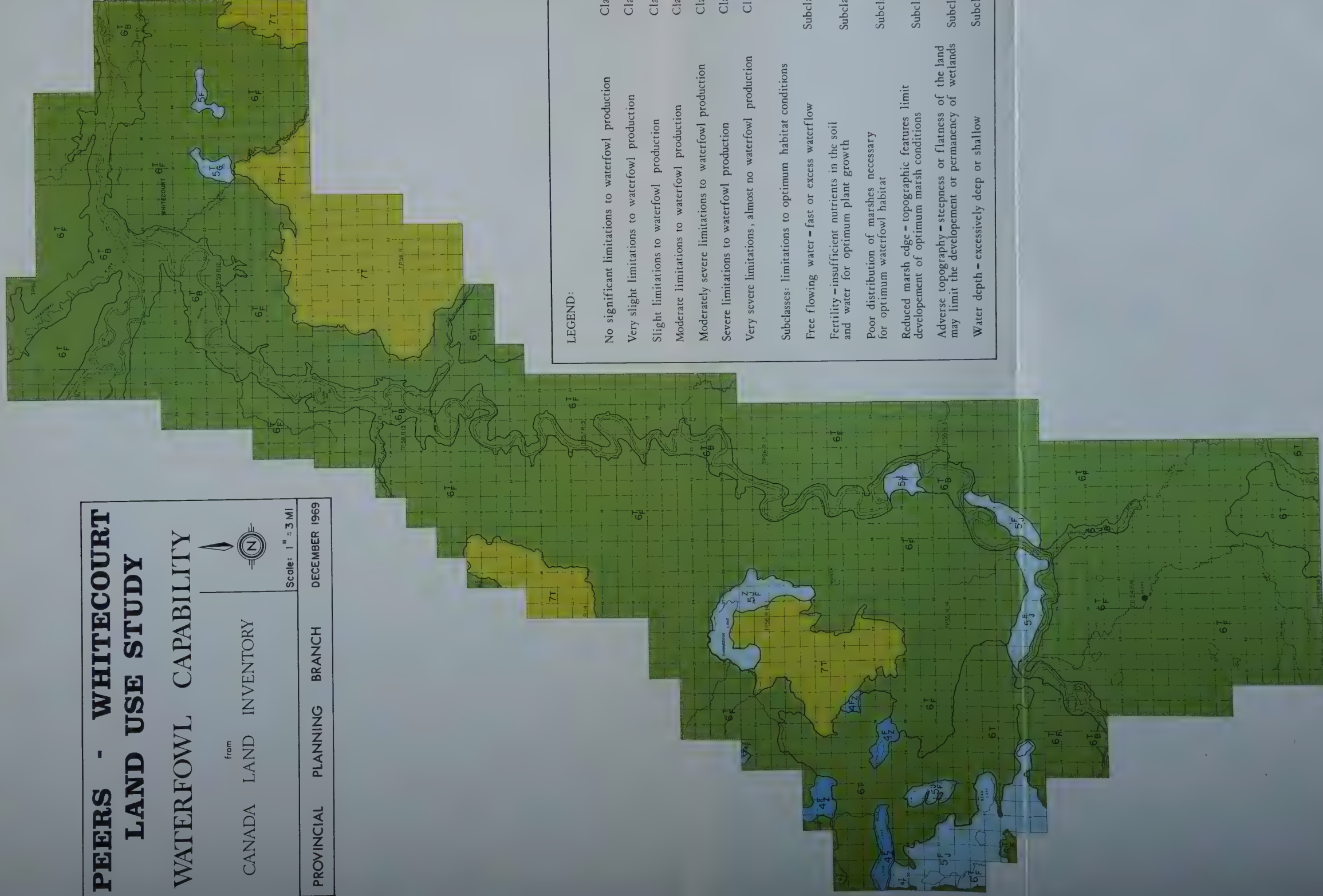
PEERS - WHITECOURT LAND USE STUDY WATERFOWL CAPABILITY

from
CANADA LAND INVENTORY



Scale: 1" = 3 MI

PROVINCIAL PLANNING BRANCH DECEMBER 1969



LEGEND:

Class	1
Class	2
Class	3
Class	4
Class	5
Class	6
Class	7

No significant limitations to waterfowl production
 Very slight limitations to waterfowl production
 Slight limitations to waterfowl production
 Moderate limitations to waterfowl production
 Moderately severe limitations to waterfowl production
 Severe limitations to waterfowl production
 Very severe limitations, almost no waterfowl production

Subclasses: limitations to optimum habitat conditions

Free flowing water - fast or excess waterflow

Fertility - insufficient nutrients in the soil and water for optimum plant growth

Poor distribution of marshes necessary for optimum waterfowl habitat

Reduced marsh edge - topographic features limit development of optimum marsh conditions

Adverse topography - steepness or flatness of the land may limit the development or permanency of wetlands

Water depth - excessively deep or shallow

Subclass B

Subclass F

Subclass G

Subclass J

Subclass T

Subclass Z

TABLE VI
PEERS-WHITECOURT STUDY AREA
SUMMARY OF CAPABILITY RATINGS

CANADA LAND INVENTORY		
<u>CAPABILITY</u>	<u>ACRES</u>	<u>PERCENTAGE OF TOTAL AREA</u>
AGRICULTURE 4	165,600	53.4
AGRICULTURE 5	68,640	22.3
AGRICULTURE 6	32,640	10.5
AGRICULTURE 0	42,880	13.8
FORESTRY 3	17,920	5.8
FORESTRY 4	199,040	64.3
FORESTRY 5	36,480	11.8
FORESTRY 6	8,160	2.6
FORESTRY 7	48,160	15.5
WATERFOWL 4	2,080	.7
WATERFOWL 5	13,920	4.5
WATERFOWL 6	261,120	84.3
WATERFOWL 7	32,640	10.5
UNGULATES 1 W	25,920	8.4
UNGULATES 2 & 2 W	77,920	25.2
UNGULATES 3	79,520	25.6
UNGULATES 4	80,640	26.0
UNGULATES 5	10,400	3.4
UNGULATES 6	35,360	11.4
RECREATION 4	22,720	7.4
RECREATION 5	227,520	73.5
RECREATION 6	58,560	18.9
RECREATION 8	960	.2

VIII SETTLEMENT AREAS AND LAND DISPOSITION

Land within the study area is subdivided into three settlement zones or areas. These dictate the kinds of land uses which are permitted under existing policies of the Department of Lands and Forests. The breakdown within the study area is as follows:

White Area	224 sq. miles	46.3%
Green Area	175 sq. miles	36.2%
Brown Area	85 sq. miles	17.5%

The permitted uses in each of these settlement areas are listed on Map L.

Land disposition, as indicated on Map K, is divided into three main groupings:

Crown	187 sq. miles	38.7%
Patented	148 sq. miles	40.8%
MacMillan Bloedel Lease	99 sq. miles	20.5%

Crown lands may be acquired by the public for various uses. These uses will depend upon whether the land is in the White or Green Settlement Area.

Grazing leases exist both in the White and Green Areas. Grazing in the Green Area is administered by the Alberta Forest Service and in the White Area by the Lands Division of the Department of Lands and Forests. Grazing leases are issued on available public lands for a term up to twenty years. Certain lands may also be granted for grazing on a year to year basis under a Grazing Permit. The rental and tax rate varies from year to year and is based on a formula, which

takes into account the carrying capacity of the land and the average price of beef on the Calgary stockyards. When a lease is issued, the lessee must, within two years, enclose the leased area with adequate fencing. Within the Green area grazing must be restricted to summer months (June 1st to October 31st). Therefore, the applicant must control adequate land to support his livestock farming when grazing is not permitted in the Green area. Under special circumstances permission may be granted in order that a specific portion of the land held under a grazing lease be used for cultivation or residential purposes.

Cultivation leases may be issued up to 320 acres on available public land for a maximum of 10 years. A lessee is required to pay a cash rental based on a percentage of the assessed value, plus an amount equal to the taxes.

Miscellaneous leases and permits may be issued for camp sites, mill sites, etc.

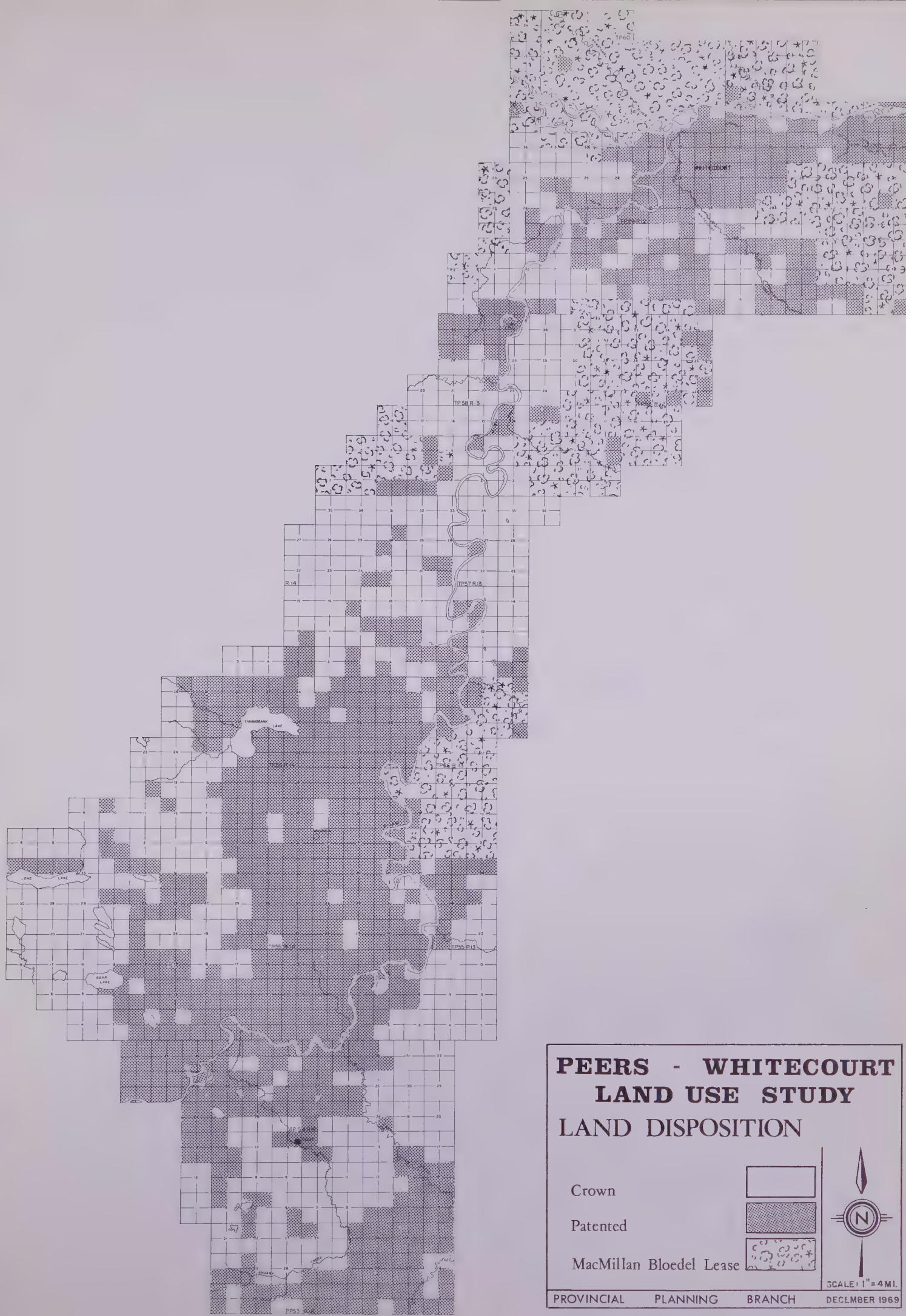
Another kind of disposition of land within the study area is Agricultural Farm Sales. An established farmer residing on a farm of not less than eighty acres nor more than four quarter sections may apply to purchase available public lands which are within two miles of the land he owns and two miles from where the applicant resides. The total area applied for, including the land the applicant or his spouse owns, cannot exceed 800 acres.

Some of the more important dispositions and applications for disposition of crown land within the study area are as follows:

<u>DISPOSITION OF CROWN LAND</u>	<u>NUMBER OF QUARTER SECTIONS</u>
Grazing lease	47
Application for grazing lease	36
Grazing permit	5
Cultivation lease	7
Application for cultivation lease	3
Miscellaneous permit	3
Application for Miscellaneous permit	12
Agricultural farm sale	62
Applied to purchase	27
Homestead sale	42
Homestead lease	3
Special timber permit	13
Licensed timber berth	12
Tax Recovery, Municipal Affairs	44

The Peers-Whitecourt Land Use Study Area is located within an area where a Farm Adjustment Committee has been established to deal with the allocation of public lands for agricultural purposes. All applications to lease or purchase public land will be reviewed by this committee.

Further information on disposition within the study area can be obtained from the Director of Lands, Department of Lands and Forests, Edmonton. The Director of Forestry, Alberta Forest Service, Department of Lands and Forests can supply information regarding grazing in the Green Area and on matters pertaining to special timber permits and licensed timber berths. Information concerning Tax Recovery Land can be obtained from the Department of Municipal Affairs, Edmonton.

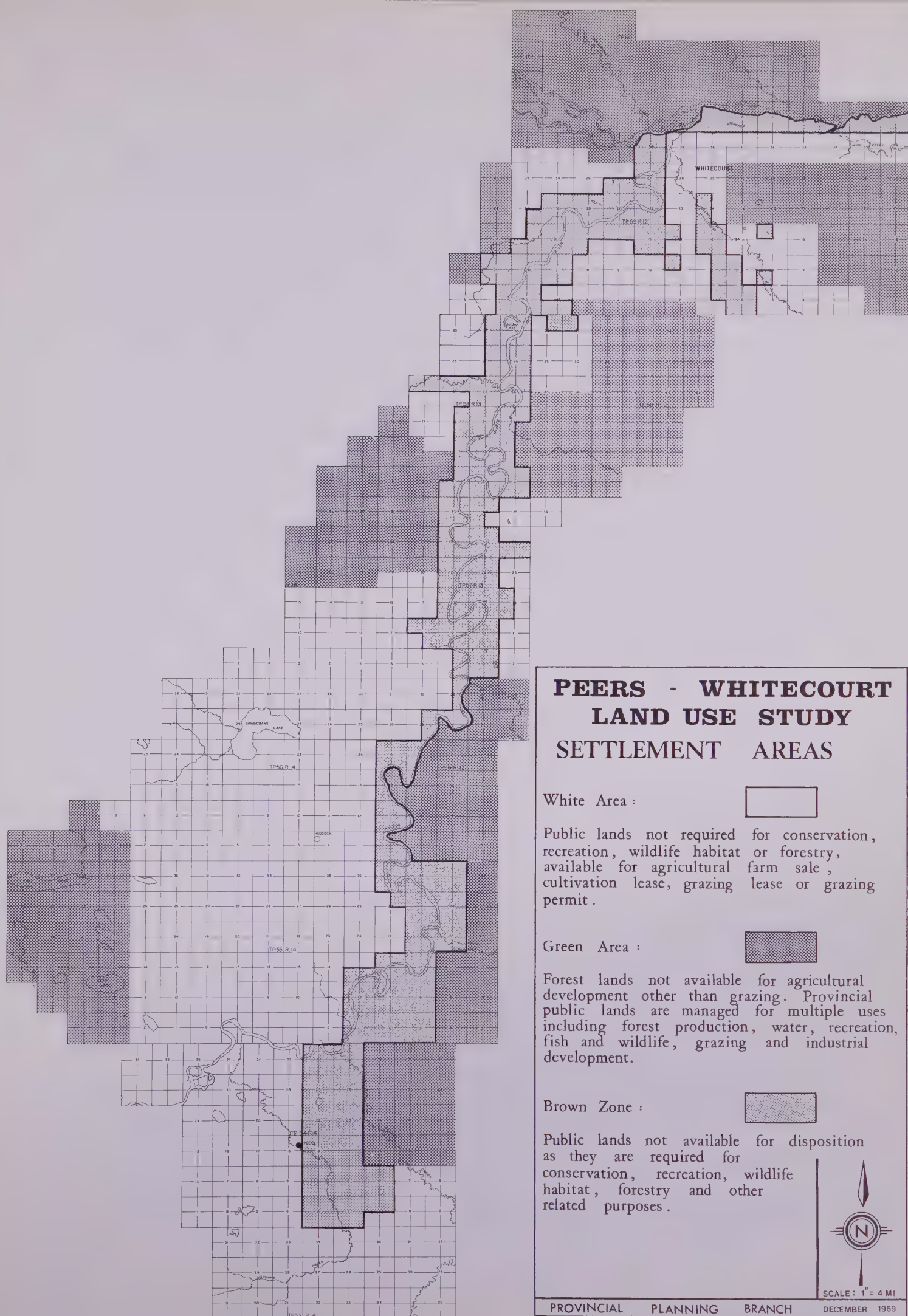


PEERS - WHITECOURT LAND USE STUDY LAND DISPOSITION

- Crown
- Patented
- MacMillan Bloedel Lease



SCALE: 1" = 4 MI.



IX EXISTING SERVICES

(a) Transportation Facilities

Two major highways pass through the margins of the study area. In the south, Highway 16, part of the Yellowhead route, joins Edmonton with the British Columbia interior. The Yellowhead is now being used extensively by truckers travelling between Vancouver and Edmonton. Based on current traffic figures, a divided highway may eventually be built over this route. The existing road provides excellent accessibility to Edmonton for the people within the study area. The highway passing throughout Whitecourt, Highway 43, has a more obvious effect on the study area. This highway provides access to the Alaska Highway and is increasing in importance with new activity in the resource fields in both Alaska and Northern Canada. Whitecourt is becoming a major stopping point and the services provided there have resulted in increased employment and investment in the town and surrounding areas.

The majority of the area is serviced by graded roads. Of the roads that exist, 205 miles are gravelled and graded. Approximately 76 miles of road are classed as graded dirt. These are maintained year round by the Department of Highways for the Improvement Districts. In addition, a stretch of gravelled highway leads north from Highway 16 through Peers to the junction of the roads between Edson and Whitecourt.

The original intent of this report was to conduct a land use study along Highway 32 between Peers and Whitecourt. A considerable number of tourists are now using this road as it is the shortest route between Jasper and northern Alberta. This increased use has prompted the Highways Department to conduct a

study on the possibility of upgrading the current road or constructing a new highway. The results of the study indicate that a primary highway could be required in the future. Two possible locations for this highway have been proposed. The route could connect to Highway 16 via the existing Highway 32 through Peers, or it could be a more direct intercentre connection between Whitecourt and Edson. The direct intercentre connection was chosen by the Highways Department as the most logical general route. The route proposed is indicated on Map "M".

The report has received general approval within the Department of Highways, but because of the long range nature of the proposals, some minor changes may be introduced before the project is scheduled for construction. As this study is not available for public use, only a general description of the proposed route is included.

The possibility of a new route being constructed north from Edson through the Windfall oil field and joining Highway 43 west of Whitecourt has caused considerable interest. It is not known at this time if the road will be built.

Two railway lines traverse the study area. The farming area in the south has direct access to the main east-west route of the Canadian National Railroad. In the north, the C.N.R. services the Whitecourt area. This line runs between Edmonton and Windfall located 30 miles west of Whitecourt.

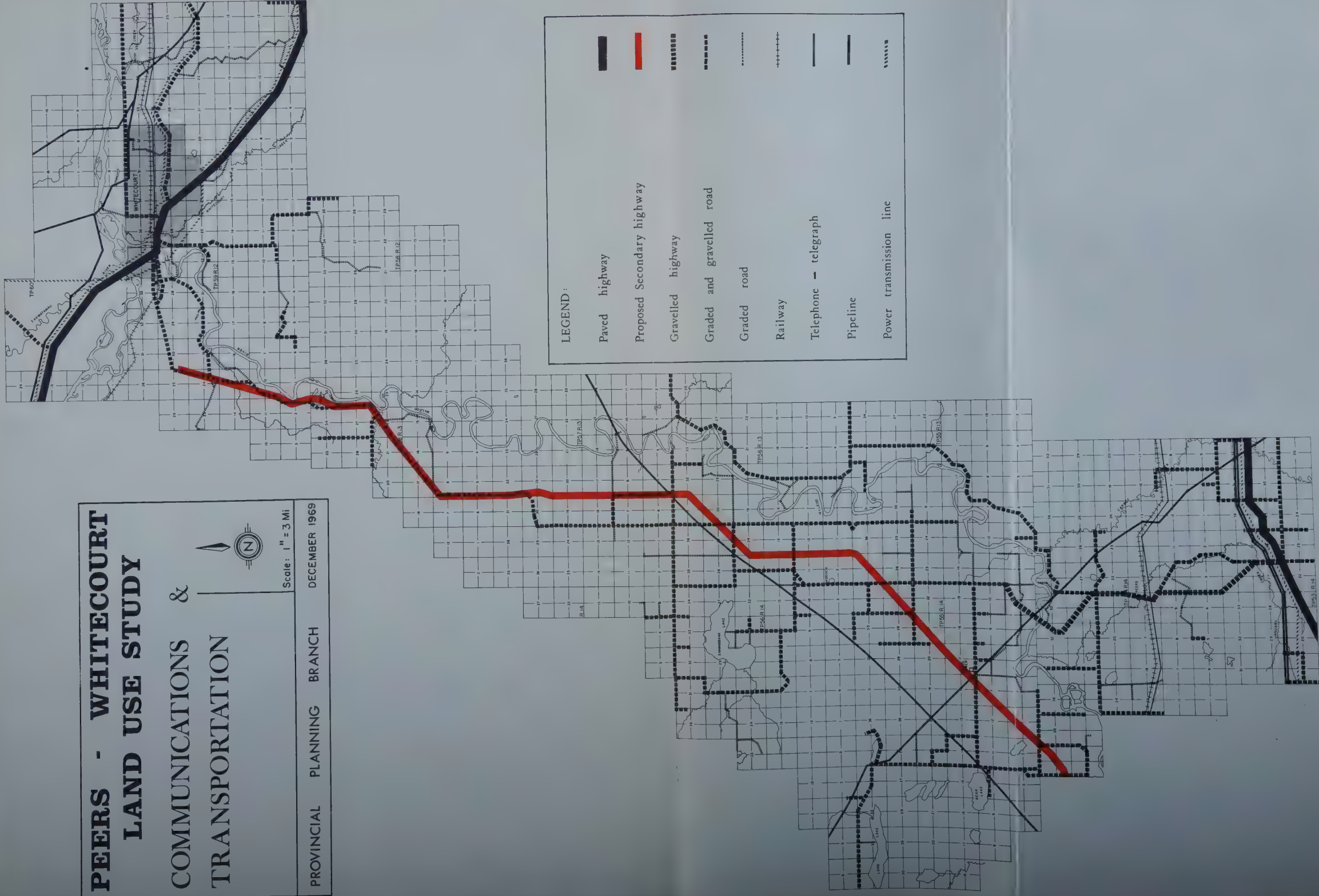
The area also has the service of an airstrip located within the Town of Whitecourt. Owned by the Lands Division of the Department of Lands and Forests, the strip is under Licensed Occupation to Falcon Airways who make it available to public aircraft. The strip itself is 2800 feet in length and 100 feet in width

PEERS - WHITECOURT LAND USE STUDY & COMMUNICATIONS & TRANSPORTATION



Scale: 1" = 3 Mi

PROVINCIAL PLANNING BRANCH DECEMBER 1969



LEGEND :

Paved highway

Proposed Secondary highway

Gravelled highway

Graded and gravelled road

Graded road

Railway

Telephone - telegraph

Pipeline

Power transmission line

with a limit of 10,000 - 12,000 lbs. during most of the year. In the spring, the limit drops as low as 2800 lbs. until the strip dries out.

With the expansion of the Town of Whitecourt and the possibility of a pulp mill being built near the town, a better airport will be required. The Federal Department of Transport has proposed a new site which is designed for aircraft in the class of the Boeing 737 with a gross weight of approximately 125,000 lbs. The plan is initially to provide a 5000 ft. runway which would be gravelled. Hardtopping would be applied at a later stage. The proposal is still in the planning stage, a lack of funds being the main obstacle. The land has been reserved until such time as a final decision regarding construction has been made. There is no doubt that this development will be an asset to the Town of Whitecourt. The location of the proposed airport is illustrated on Map N.

(b) Communications

Alberta Government Telephones supplies telephone service to the area. A large number of farms utilize this service on the party line system. A gap in service occurs in the north central sector of the study area. Telegraph systems are available from both Peers and Whitecourt stations.

A variety of television and radio stations are available in the area. Both the CBC and CTV television networks are available to the local residents. In addition, Edson has its own radio station (CJYR). Broadcasts from CBC radio and some of the more powerful Edmonton stations are also available.

The area is serviced by three newspapers. The Whitecourt Star, published weekly, serves the local needs for the northern portion of the study area. Having a circulation of 1075, this paper seems to have held its own in the past and will

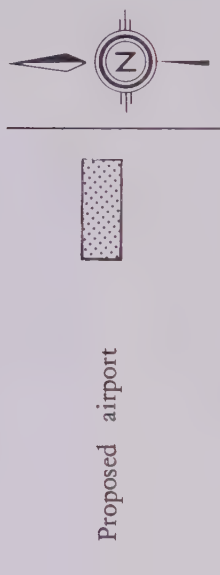
undoubtedly increase should the pulp mill and its service industries locate in or near Whitecourt. The southern area including Peers is served by the Edson Leader. This paper has a circulation of more than 2,000 with 1,836 subscribers. The Edmonton Journal is distributed to approximately 500 families in Whitecourt.

(c) Utilities

Electric power is the only utility that is available within the rural area. Calgary Power supplies this service to the majority of the residents. Townships 57 and 58 in ranges 12 and 13 are the only areas without power at the present time. Of the 275 farms within the study area, approximately 154 (56%) have electricity. The Provincial Government provides financing to enable the farmers of this area to acquire electricity. A loan at a rate of 3 1/2 percent over a twenty to twenty-five year period is available through the Co-operative Activities Branch of the Department of Industry and Tourism.



**PEERS - WHITECOURT
LAND USE STUDY
PROPOSED AIRPORT**



X DEMOGRAPHY

This section is intended to illustrate some of the demographic characteristics of population within the Peers-Whitecourt area. The majority of the information used in this summary has been extracted from the figures published by the Dominion Bureau of Statistics for the census years 1961 and 1966. The enumeration areas whose boundaries are totally or partially located within the study area are outlined on Map "O". Table VII represents a breakdown of the population, by township, in the area.

(a) Population - Its Changes and Distribution

More than ninety percent of the land under study can be classified as rural. Whitecourt, the only urban municipality, plays an important role in determining the movements of population within the area. However, expansion of the town's boundaries is not considered probable or practical in the near future. As such, the characteristics of the rural population will have the greatest effect on the land use plan and will be given prime consideration in this analysis.

Both the farm¹³ and non-farm¹⁴ sectors of the rural population of Alberta have decreased over the past two decades (see Table VIII). Within the farm segment,

¹³ D.B.S. defines Farm as "an agricultural holding of one or more acres with sales of agricultural products of \$50.00 or more in the previous year." Dominion Bureau of Statistics, 1966 Census of Canada, Agriculture, Alberta, Ottawa, page -v-.

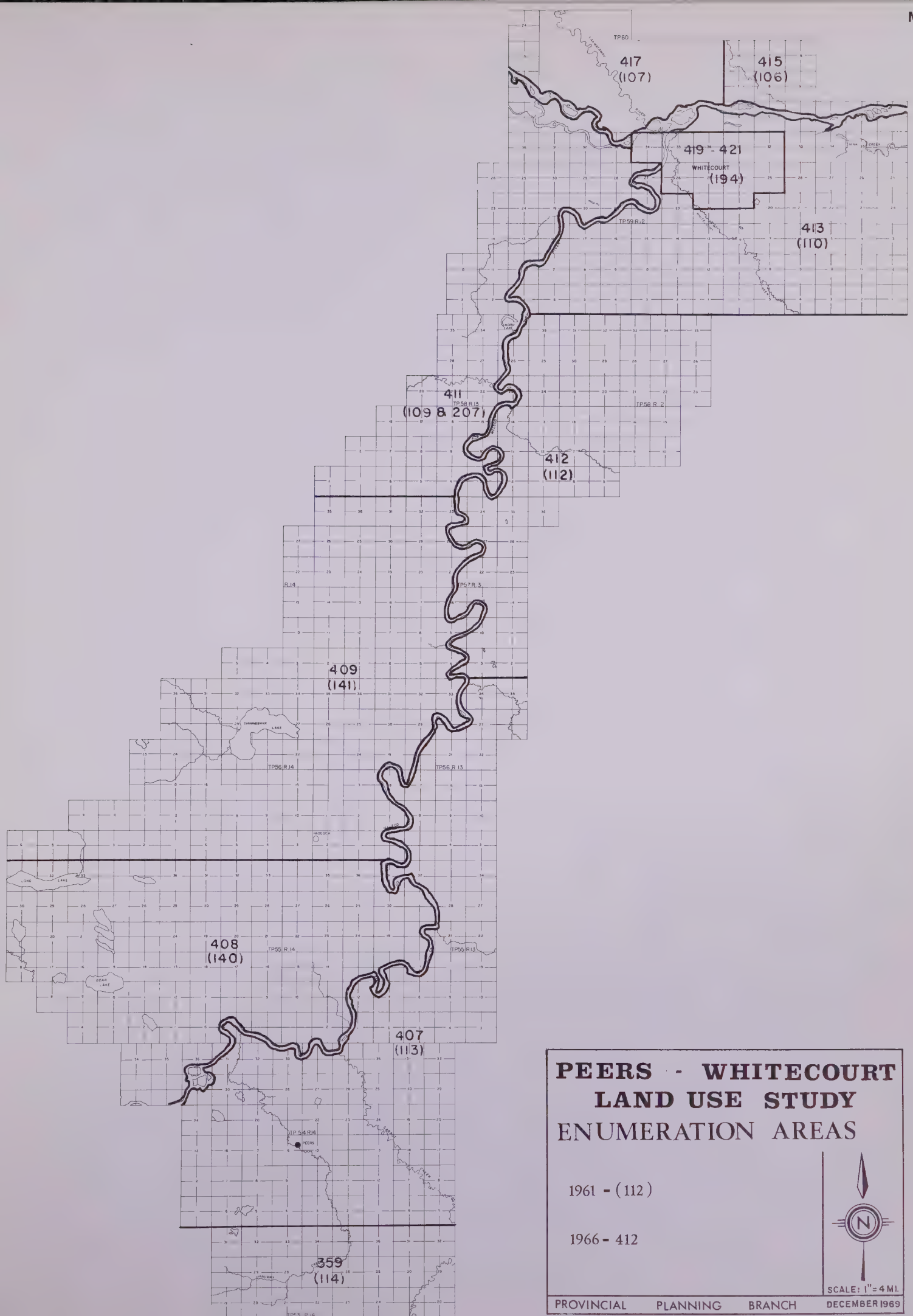
¹⁴ D.B.S. defines Urban as "all cities, towns and villages of 1,000 or more whether incorporated or not."
Non-Farm includes urban areas of less than 1,000 people as well as any lands beyond urban areas of 1,000 or more that do not produce sales of \$50.00 in the year prior to the census.
Dominion Bureau of Statistics 1966 Census of Canada - Population - Rural and Urban Distribution Ottawa

TABLE VII
SUMMARY OF POPULATION BY TOWNSHIP

Township and Range	1951	1956	1961	1966	% Change 1951 - 1966
53 - 13	19	18	16	16	- 15.8
53 - 14	45	36	46	71	57.8
54 - 13	12	10	15	12	0
54 - 14	196	218	223	219	11.7
54 - 15	43	51	43	40	- 7.0
55 - 13	19	13	15	23	21.1
55 - 14	122	125	119	169	38.5
55 - 15	66	57	68	66	0
56 - 13	30	38	36	35	16.7
56 - 14	180	151	160	150	- 16.7
56 - 15	4	4	2	1	- 75.0
57 - 13	14	22	28	31	121.4
57 - 14	4	8	11	11	175.0
58 - 13	19	0	3	6	- 68.4
58 - 14	33	43	23	26	- 21.2
59 - 11	12	10	10	17	41.7
59 - 12	552	762	636	116	- 79.0
59 - 13	5	6	12	10	100.0
60 - 11	6	4	4	5	- 16.7
60 - 12	5	5	11	12	140.0
60 - 13	1	0	0	0	-100.0
TOTAL	1,387	1,581	1,481	1,036	- 25.31
Total minus 59 - 12	835	819	845	20	10.18
Whitecourt			1,054	2,279	116.2

SOURCE: Dominion Bureau of Statistics

Note: Figures are an estimate of population located within those portions of townships found in actual study area.



PEERS - WHITECOURT LAND USE STUDY ENUMERATION AREAS

1961 - (112)

1966 - 412



SCALE: 1" = 4 MI.

TABLE VIII

RURAL POPULATION CHANGES

	<u>RURAL POPULATION</u>		<u>% CHANGE</u>	<u>FARM SECTOR</u>		<u>NON-FARM SECTOR</u>	
	1961	1966		1961	1966	1961	1966
ALBERTA	488,733	455,796	- 6.74	285,823	277,598	202,910	178,198
C. D. 14	11,501	9,984	-13.19	3,691	4,807	7,810	5,177
STUDY AREA	2,602	2,038	-21.7	1,184	1,717	1,418	321

SOURCE: Dominion Bureau of Statistics

Note: Study area figures are derived from enumeration area data and will be slightly greater than those for actual study area.

the technological advances made in recent years have reduced the quantity of farm labour required to operate efficiently. Mass production has become a necessity in this industry, as it has in others, resulting in farm consolidation. The small farmers are unable to compete and they often must sell their land and move to the urban centres. The poor market conditions of recent times have intensified this situation because of the increased inability of smaller farm operations to compete in a market of reduced prices. The non-farm reduction is a result of the movement of people from the smaller communities (less than 1,000 people) to the urban centres. In addition, the shifting of the people employed in resource exploration has caused decreases in some rural areas and increases in others.

The Peers-Whitecourt area follows the general provincial trend of reduction of rural population. This is directly attributed to the reduction in non-farm population due to the annexation by the Town of Whitecourt in 1961 of a partially settled area previously classified as rural. The out-migration of a number of people engaged in resource exploration from the Whitecourt area in recent years has also contributed to this reduction.

There are two factors which have decelerated the reduction of rural population of the area. The first, involving the farm population of this area, focuses on the availability of Crown Land for disposition. Certain lands were removed from the Green Zone and these became available for farm use.

The other factor which has prevented even greater reduction of rural population is the growth in the number of country residential sites surrounding the Town of Whitecourt. An increasing number of applications for subdivision

for country residential sites implies a continuation of this trend in the near future.

It is expected that the 1971 census will show an increase in the total rural population of the area. This will be primarily due to an increase in the non-farm segment of the rural population. The increase in this segment will be due to the predicted increase in country residences and the reclassification of many farmers to non-farm status as they turn to industry for employment. The stagnation of the farm segment can be related to a decrease in the amount of new land being made available and further consolidation of existing farms.

In summary, the rural population of the study area declined over the period 1961 to 1966. But, for the reasons mentioned above, the census period 1966 to 1971 is expected to show an overall increase in the total rural population. The majority of this increase is expected to occur in the non-farm sector of the rural population.

The only urban centre in the area, the New Town of Whitecourt, has grown at a spectacular rate in the ten year period 1960 - 1970. According to figures provided by the town for the purposes of qualifying for Municipal Aid Grants, Whitecourt has grown from a population of 986 in 1960 to 2,261 in 1962 and by January 1st, 1970, had realized a population of 2,894. This is an increase of 194 percent over the ten year period. The prime reason for the large increase from 1960 to 1962 was the annexation mentioned previously. A part of the annexed area was already an urban settlement before annexation and consequently was the source of much of the population increase of Whitecourt. The establishment of Whitecourt as a service centre and local headquarters for a number

TABLE IX

TOTAL LABOUR FORCE 1961

Enumeration Area	Industry	Agric.	Forestry	Trapping and Fishing		Mines	Manuf.	Constr.	Transp.	Trades	Finance	Service	Pub. Adm.	Unstated
				Fishing										
109	92	1	13			31		34	2	1		10		
110	219	27	13			65	9	11	29	35	2	26	1	1
112	87	44	4			2	3	5	22	4		3		
113	103	34	2			3	4	10	18	9		10	7	6
114	125	54	9	2		4	9	12	15	4		13	2	1
140	51	20	3			1		6	11	4		6		
141	72	48	2				1	5	10	2		2	2	
207	65	6	15			10	18	4	4	4		4		
														- 44 -
Total Rural Area	814	234	61	2		116	44	87	121	63	2	74	12	8
194 (Whitecourt)	432	3	25	3		35	81	43	62	92	6	66	4	12
Total Study Area	1,246	237	86	5		151	125	130	183	155	8	140	16	20

SOURCE: Dominion Bureau of Statistics

Note: Rural area and study area figures are derived from enumeration area data and will be slightly greater than those for actual study area.

of oil exploration companies also contributed to this growth. Recently, an increase in the use of Highway 43 as a route to the Peace River Country and Alaska has caused broadening of the transportation service industry and a further increase in population has resulted. This growth should continue for several years. Should the MacMillan Bloedel pulp mill become a reality, an even greater population increase would occur. The magnitude of this increase will be established in the following sub-section on population projections.

(b) Population Projections

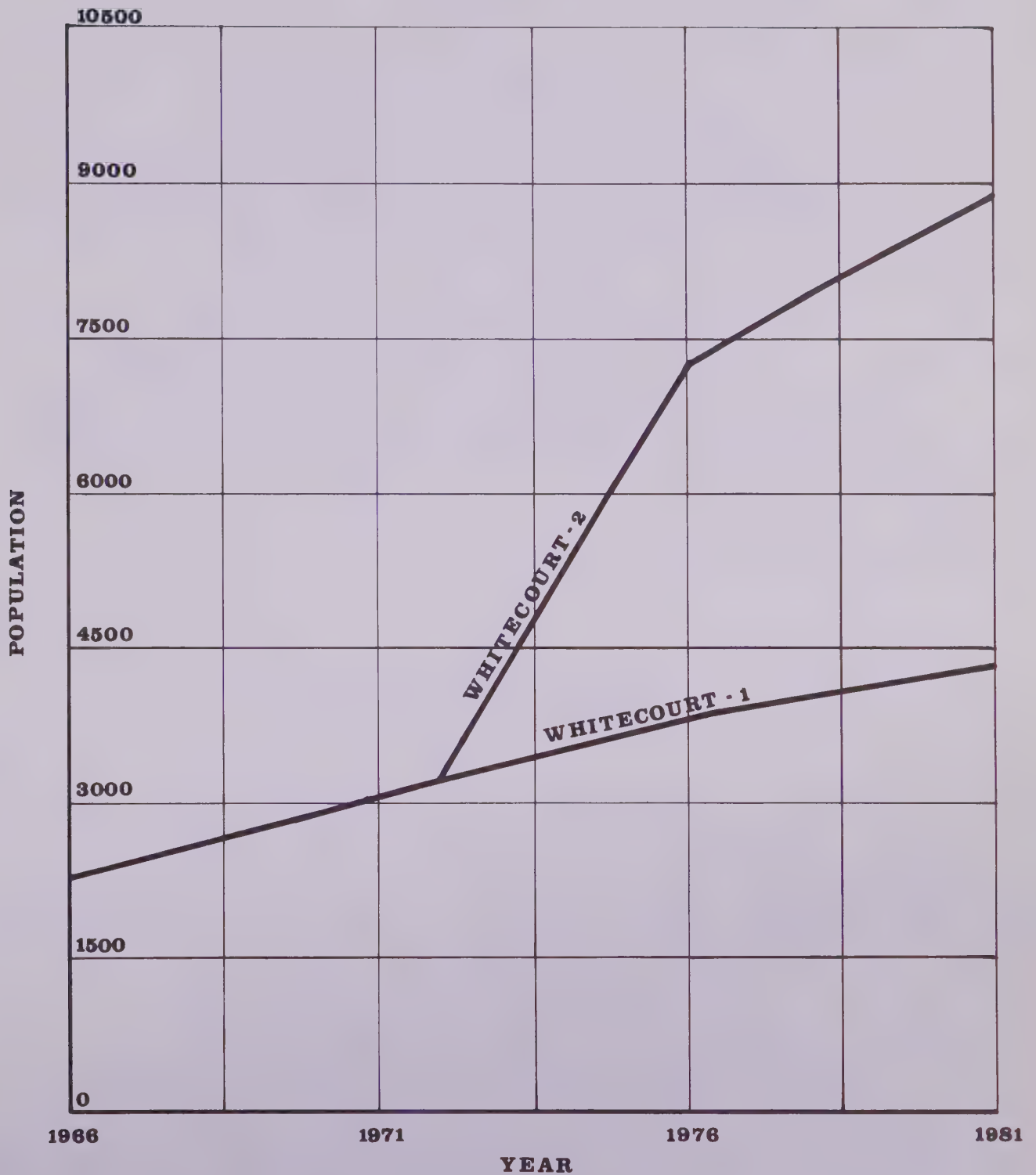
It is difficult to prepare population projections for an area such as the Peers-Whitecourt Study Area in which the majority of the populace depends on the harvest and exploitation of natural resources for a living. Changes in demand, exhaustion of supply, and technological advances can cause large shifts in the population of such an area in a relatively short period of time. The newness of the area creates an additional problem in that a complete set of statistics is not available. The smallest unit for which statistics are available is Census Division 14. However, because the study area is not considered homogeneous in population structure with C.D. 14, the patterns developed in the larger unit are not applicable in the study area. Therefore, a population projection for the whole of the Peers-Whitecourt area is not practical.

In general, the population of the rural sector of the Peers-Whitecourt area is expected to increase slightly over the period 1969 - 1981. As mentioned previously in this section, the Town of Whitecourt will continue to draw people to the area who will work in town and live beyond the actual town limits. The general farm population is expected to remain static for at least the next ten years.

A population projection for the New Town of Whitecourt is possible because the necessary statistics are provided by the municipality. Population change was calculated on an annual basis from 1962 to 1969. These figures were then used to produce an average population change of +3.5 per cent per year. Based on this rate of increase, the projected population of Whitecourt in 1981 will be 4,311. This projection assumes that no significant changes in the economic structure will occur between 1969 and 1981.

There will be a definite change from the normal rate of growth, should MacMillan Bloedel Limited locate a pulp mill in Whitecourt. This would have far-reaching effects on the population of the town because the majority of the workers would live within the town limits. In a population projection calculated for the Whitecourt General Plan, it was estimated that an additional 600 workers would be employed in the mill alone. In addition, approximately 80 service workers would be required. Calculated at an average of 4 persons per family, this would mean an additional 2,720 people would be located in Whitecourt. Further information now lists the prospective number of permanent employees at 800. Based on the same numbers of service people required, 3,600 people would be added to the town population.

TABLE X
POPULATION PROJECTIONS



WHITECOURT - 1 ----- WITHOUT PULP MILL
WHITECOURT - 2 ----- WITH PULP MILL

(c) Population Characteristics

An excellent tool for determining certain characteristics of the population of an area is the age-sex pyramid. The normal form of the pyramid is not applicable in this study area because of the format of the information available. The age groups are established by the census in periods of five years for the younger age groups and ten years for the older population. A modified form of the pyramid is shown in Table XI.

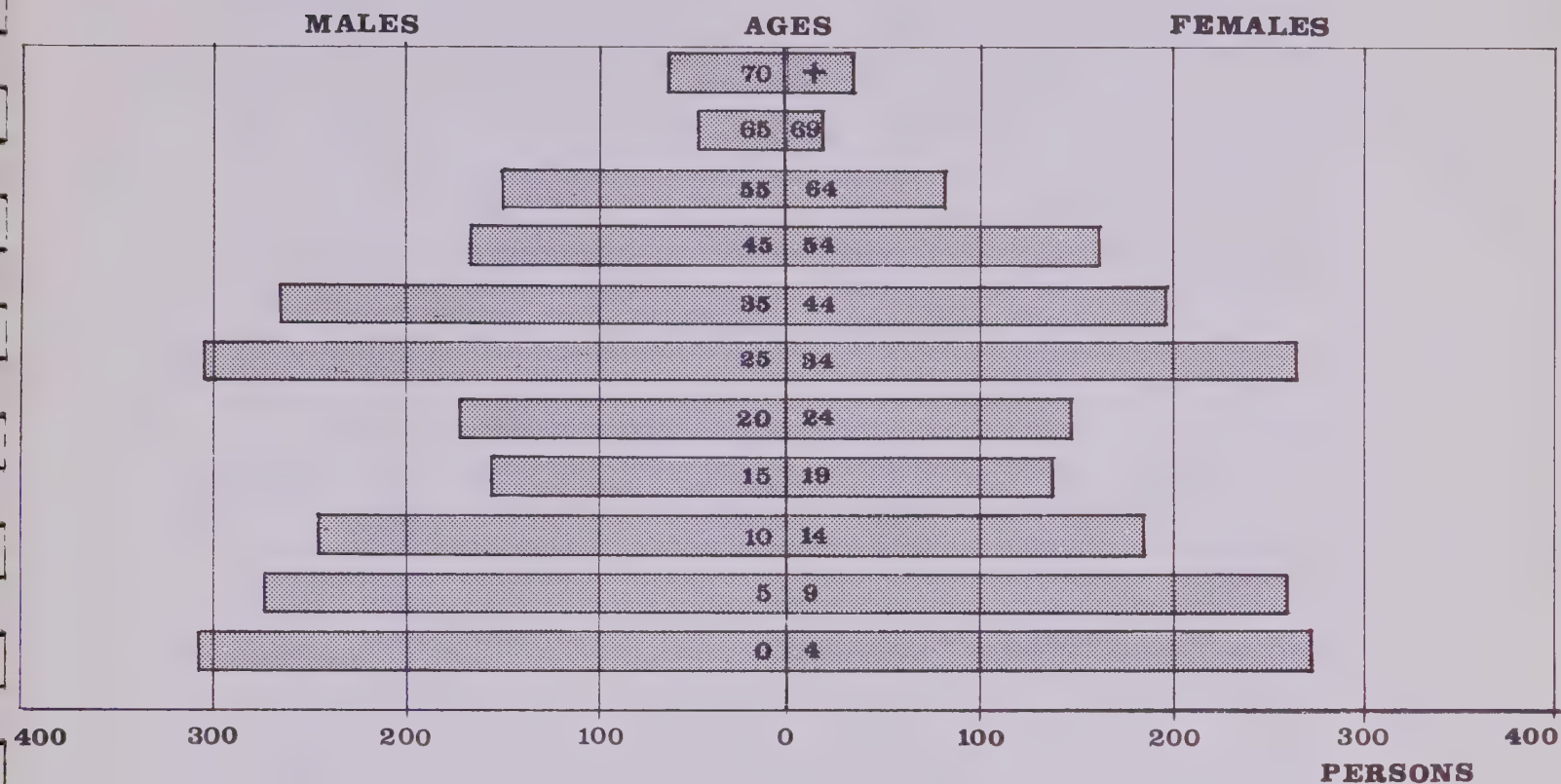
When the pyramid representing the Peers-Whitecourt area is compared to that representing the entire province, some distinct variations are evident. One obvious deviation from the provincial norm is the unusually large proportion of the population in the 20 - 24 age group in relation to the 15 - 19 age group. In the Peers-Whitecourt area this is directly related to the development of the resource exploration industry. This industry requires a mobile work force which has achieved a certain level of training and is capable of some physical labour.

The second significant difference in population between the study area and the province is the small proportion of people over 70 years of age in the Peers-Whitecourt area. Most of this difference can be attributed to the recent development of the area. Settlement of the area occurred primarily in the last forty years. Since there has been little development in the area to attract people over 40 years of age, this sector of the population structure has not yet had time to develop.

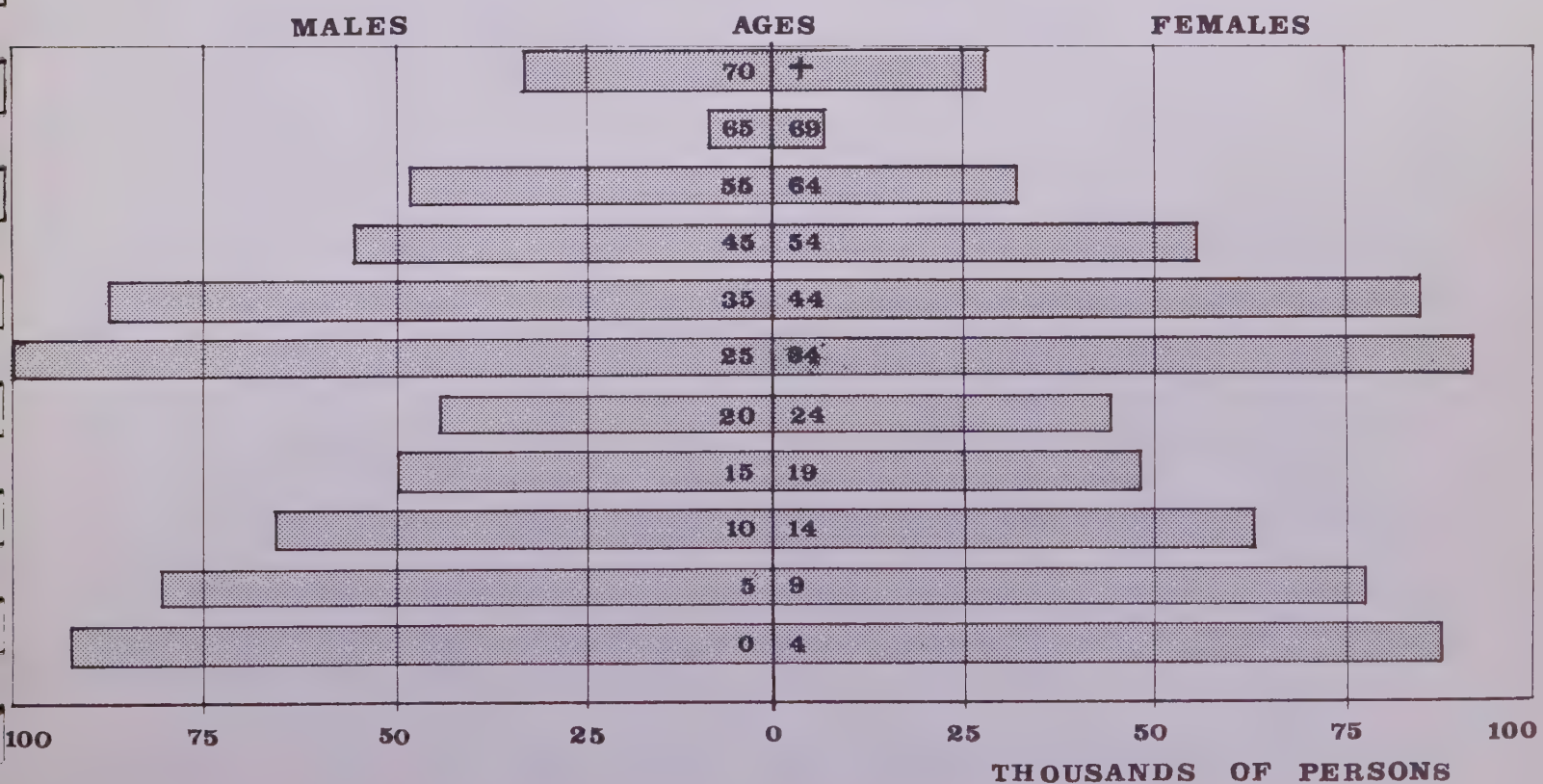
Another significant difference is a lower proportion of females to males in the Peers-Whitecourt area as compared to the overall provincial average. Females make up 45 per cent of the total population in the study area whereas they make up 48.2 per cent of the province. This is a direct result of a large influx of males into the study area engaged in the resource exploration industry.

TABLE XI
AGE-SEX DISTRIBUTION OF POPULATION IN 1966

TOTAL STUDY AREA



ALBERTA



An interesting indication of the background of the people in the area comes from the place of birth and migration figures taken from the 1961 census. Approximately 77 per cent of the population in 1961 was born in Canada. Of the total number of immigrants in the area, 67.51 per cent arrived in Canada before 1946. This compares with a provincial average of 57.10 per cent. After interviewing a number of people in the area, it appears that the majority of these immigrants were settled in the Peers-Whitecourt area prior to 1946. The small percentage of population over 70 years of age (Table XI Total Study Area) suggests that these immigrants who settled prior to 1946 were predominantly in their twenties at the time of immigration.

Table XII summarizes the ethnic origins of the population of the Peers-Whitecourt area. This information is of assistance in understanding the background and culture of these people. In general, the composition of the population of the study area by ethnic origins is very similar to that of the province as a whole.

TABLE XII
ETHNIC ORIGINS - 1961

E.A.	Br. Isles	French	German	Netherl.	Polish	Scand.	Ukrain.	Other Europe	Eskimo Indian	Other
109	87	16	34	8	2	10	10	10	7	14
110	296	44	96	15	24	54	47	27	19	1
112	96	8	64	15	11	35	1	12	2	
113	194	3	68	61	5	11	6	33	7	2
140	99	17	41	28	32	6	13	26		
141	144	10	18	4	3	16	5	20	17	8
207	99	4	20	4	1	15	9	32		11
	<u>1,015</u>	<u>102</u>	<u>341</u>	<u>135</u>	<u>78</u>	<u>147</u>	<u>91</u>	<u>160</u>	<u>52</u>	<u>36</u>
% of										
Total	47.06	4.73	15.81	6.26	3.62	6.81	4.22	7.41	2.41	1.67

XI AGRICULTURE

The agricultural potential of the Peers-Whitecourt area has been widely disputed. As indicated in the section on soils earlier in the report, the potential of the area is marginal with regards to arable production. It is more amenable to pasture and forage crops. Considering the poor market conditions for grains, it would be reasonable to rule out arable crops entirely from this area. The fact does remain that the river valley is capable of supporting arable agriculture and has been doing so to varying degrees of success for a number of years.

In addition, a definite conflict exists between forestry and agricultural land use. The problem centres on the availability of Crown land and farm financing for arable agricultural pursuits. The key to an analysis of the situation is the past performance of the agricultural sector of the economy.

An insight into farming as it exists today is found in a book written by Edward Higbee, entitled Farms and Farmers in an Urban Age. This book provides an interesting analysis of the current trends of farming in the United States. He notes that the number of farms in the United States has decreased at a tremendous rate, from 6.8 million in 1955 to 3.7 million in 1961 with a projection of only one million farms by 1980. This drastic reduction in numbers can be attributed to a revolution in farm administration. The archaic farm management practices are rapidly being replaced by structures more closely resembling modern corporations. This resulted from a rise in the cost of land and materials combined with a decrease in the prices paid for farm products, in particular grains. The only way to counteract

this problem was to establish more efficient farms, thereby improving production. In the United States, for the period 1948 - 1957, "the production per man-hour on farms increased 48.6 percent while the improvement in other industries was only 25.5 percent."¹⁵

Higbee further states that the small farmer generally does not have the capital to adopt the corrective measures that would create this increase in efficiency.

Canadian farmers must increase the efficiency of their farm operations if Canada's farm products are to be competitive on the world market. In Alberta, many farmers have followed this trend. The number of farms have decreased while the total acreage per farm has increased. This change has occurred primarily in the good farming areas which have prime soils and a relatively mild climate. However, the Peers-Whitcourt area does not have these characteristics. In addition, the lack of a strong resource base will discourage the influx of capital required to increase the efficiency of the agricultural sector. This permits the homesteaders and small farmers to continue in agriculture as they are not bought out by the more efficient farmers. Low taxes, low rentals on Crown land and a variety of farm subsidies provide the incentive for these people to carry on. With the proper agricultural orientation, possibly livestock, these low costs could assist a farmer in expanding his operation to the point where it would be a profit-making situation.

¹⁵ E. Higbee, Farms and Farmers in an Urban Age, Twentieth Century Fund, New York, 1963, p. 11.

To improve the viability of agriculture in the area the Provincial Government has designated C. D. 14 as one of its pilot projects for agricultural rehabilitation under the A.R.D.A. agreement. A Farm Adjustment Committee has been established to assist the small farmer in relocation should his operation prove uneconomic as well as helping more efficient farmers to consolidate into economic farm units. This committee, consisting primarily of local farmers, with government officials acting as advisors, makes direct recommendations on expansion of existing farms, purchasing of uneconomic farm units and the disposal of Crown Land. These recommendations are considered by the A.R.D.A. administrators in conjunction with the Provincial authorities before a final decision is made.

The following analysis indicates some of the problems experienced by the farmers of the area. The statistics on the study area are based on 1966 census data for the Enumeration Areas 407, 408, 409, 411, 412 and 413, whose boundaries are primarily located within the study area (see Map "O" Enumeration Areas). Values of capital investment and farm production for the entire area of Census Division 14 are used. This is possible since farming is fairly uniform in these aspects throughout the area.

Referring to Higbee, the most obvious farm trend today centers on the enlargement of the farm unit and a reduction in the number of units. An analysis of the census data for 1961 and 1966 generally indicates a contradiction to these trends in the Peers-Whitecourt area. Some statistics do provide encouragement that the agricultural sector of this area is progressing at least as well as the rest of the economy. The farm size has increased within the study area at almost double

the rate of the rest of the Province (see Table XIII). The problem is that the average farm size is still well below the Provincial average. To achieve the required economics of scale for efficient farming, the size of farm units must continue to make gains in relation to the Provincial increase. If one looks at the national situation, the study area has an average farm size 25 percent larger than the average Canadian farm. However, the lower national figures are directly related to the high intensity of farm development in the eastern Provinces and those subsistence farms that exist throughout Canada as a whole. The study area has a number of subsistence farmers in the area, but this is not the main reason for the lower average per farm. When the variety of crops that can grow in this area is examined, it becomes obvious that bulk crops are important and the larger the farm, the greater the economy of scale. With the guidance of the Farm Adjustment Committee, farms with development potential are being allowed to expand. The success or failure of this A.R.D.A. project should likely be evident from the 1971 census.

The number of farms also presents a contrast to Higbee's suggestion that this figure is decreasing rapidly. In this situation, the provincial and federal changes in farm numbers support Higbee's analysis, while the number of farms in the study area actually increased (see Table XIV). This local increase is related to the fact that the study area is still an agricultural frontier, and there are numerous parcels of Crown land still available for disposition. The main problem is that the majority of the new farmers do not have the capital to establish an economic farm unit. Therefore, instead of a few larger farms being established,

a number of smaller, uneconomic units have been created. The general trend in both farm size and number since 1966 would suggest that farm consolidation is occurring in the settled areas due to the introduction of the A.R.D.A. project of farm rehabilitation.

TABLE XIII

FARM SIZE

	1961 Acres per unit	1966 Acres per unit	% Change Acres per unit
Canada	358.80	404.45	+12.72
Alberta	654.09	705.69	+ 9.39
Study Area	419.11	494.14	+17.90

SOURCE: Dominion Bureau of Statistics

Note: Study area figures are derived from enumeration area data and may be slightly different than those for actual study area.

Income is the best indication of success in the farm industry. Since this information is not available for the study area, an interpretation of the financial status of the area using capital investment, cash sales, and taxes paid by the farm sector has been attempted.

A possible estimate of income per farm can be derived from the total gross cash sales of farm products. The average cash sales on census farms in the Whitecourt area was \$3,425.13 in 1966. This is well below the national average of \$7,752.05 and the provincial average of \$9,125.34 per farm.

Costs are generally lower in this area as well. The average taxes paid by each farm in the study area in 1966 was only \$121.60. This is 30 percent of the Alberta average at \$389.50; the Canadian average of \$362.87 per farm is also well above the Peers-Whitecourt average.

Rents are also well below Provincial and Federal figures with an average of \$247.75 per farm in the study area compared with \$1,324.29 per farm in Alberta and \$1,132.69 per farm in Canada. The above mentioned figures help illustrate the quality of the farm economy in the study area in comparison to the quality of the farm economy on the provincial and national level.

Table XV shows the distribution of capital investment per farm in Census Division 14, Alberta and Canada for 1966. The Census Division 14 figure shows that 33.4 percent of the farms in the area are valued at less than \$25,000. This figure includes land, buildings, machinery, livestock and poultry. This compares to a provincial total of only 20.6 percent with a value of less than \$25,000. The lack of capital alone almost disqualifies the majority of farms in the Peers-Whitecourt area from competition with other farms in Alberta. In an area so distant from major markets, the only method of economic farming is mass production. To do this, a heavy infusion of new capital would be required.

In retrospect, there are two possible inferences that could be derived from these statistics. Either the land on which these farms are located is not capable of supporting the type of farming being attempted, or the methods utilized in applying these pursuits are insufficient and must be completely updated and mechanized before agriculture will be successful in this area. In all probability it is a combination of the two.

TABLE XIV

GENERAL AGRICULTURAL STATISTICS

Unit	Number of Farms 1961	Number of Farms 1966	Percentage Change	Total Farm Acreage 1961	Total Farm Acreage 1966	Percentage Change	Total Cropland 1966	Percentage of Farmland in Crops 1966	Value of Cash Sales Per Acre	Ag. Sales Per Farm
Canada	480,903	430,522	- 5.19	172,551,051	174,124,828	0.91	69,053,004	39.66	\$19.17	7,752.05
Alberta	73,212	69,411	-10.48	47,228,653	48,982,875	3.71	17,707,659	36.15	12.92	9,125.34
Study Area	248	271	9.27	103,941	133,912	28.83	33,328	24.89	4.45	3,012.63
E.A. 407		65		N.A.	26,164	N.A.	6,317	24.14	7.63	
E.A. 408		52		N.A.	26,843	N.A.	5,348	19.92	4.91	
E.A. 409		54		N.A.	24,011	N.A.	5,924	24.67	4.70	
E.A. 411		11		N.A.	4,172	N.A.	841	20.96	0.87	
E.A. 412		60		N.A.	39,793	N.A.	12,002	30.16	4.01	
E.A. 413		29		N.A.	12,929	N.A.	2,896	22.40	4.60	
E.A. 359		N.A.		N.A.	N.A.	N.A.	N.A.	N.A.		

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SOURCE: Dominion Bureau of Statistics

Note: Study area figures are derived from enumeration area data and will be slightly greater than those for actual study area.

TABLE XV
CENSUS FARMS BY TOTAL CAPITAL VALUE
1966

VALUE	CENSUS DIVISION 14		ALBERTA		CANADA	
	Number	%	Number	%	Number	%
Less than 1,950	2	0.19	168	0.24	1,771	0.41
1,950 - 2,949	3	0.28	258	0.37	2,715	0.63
2,950 - 3,949	13	1.27	356	0.52	4,161	0.97
3,950 - 4,949	10	0.92	411	0.63	4,966	1.15
4,950 - 7,449	47	4.60	1,543	2.22	16,565	3.85
7,450 - 9,949	77	7.54	1,872	2.69	18,703	4.34
9,950 - 14,949	154	15.08	4,692	6.76	43,389	10.09
14,950 - 19,949	136	13.32	4,955	7.14	43,146	10.02
19,950 - 24,949	104	10.19	4,931	7.10	39,710	9.22
24,950 - 49,949	320	31.34	20,378	29.36	129,882	30.17
49,950 - 99,949	126	12.34	19,410	27.96	90,411	21.00
99,950 - 149,949	21	2.06	6,175	8.90	22,888	5.32
149,950 - 199,949	5	0.49	2,202	3.18	6,916	1.60
199,950 - over	3	0.28	2,034	2.93	5,299	1.23
TOTAL	<u>1,021</u>	<u>100.00</u>	<u>69,411</u>	<u>100.00</u>	<u>430,522</u>	<u>100.00</u>

SOURCE: Dominion Bureau of Statistics

The grey wooded soils of the area need a great deal of improvement before they can become productive. An indication of the productivity of these soils is illustrated on Map "P". The climate is also a limiting factor in most years. The frost free period is the most important factor, being an average of 59 days in the Peers area and 54 days around Whitecourt. However, this is not a killing frost; the killing frost free days would be slightly longer. A. C. Carter, in an article in the Agricultural Institute Review, indicates that one of the requisites of a cereal crop is a minimum of 80 killing frost free days (28° F. or above), but it has been shown that cereal crops can be grown in the study area.

The types of products that have been marketed in the past are indicated in Table XVI.

TABLE XVI

PEERS & DISTRICT CO-OP ELEVATOR LIMITED - 1965 - 66 PERMITS

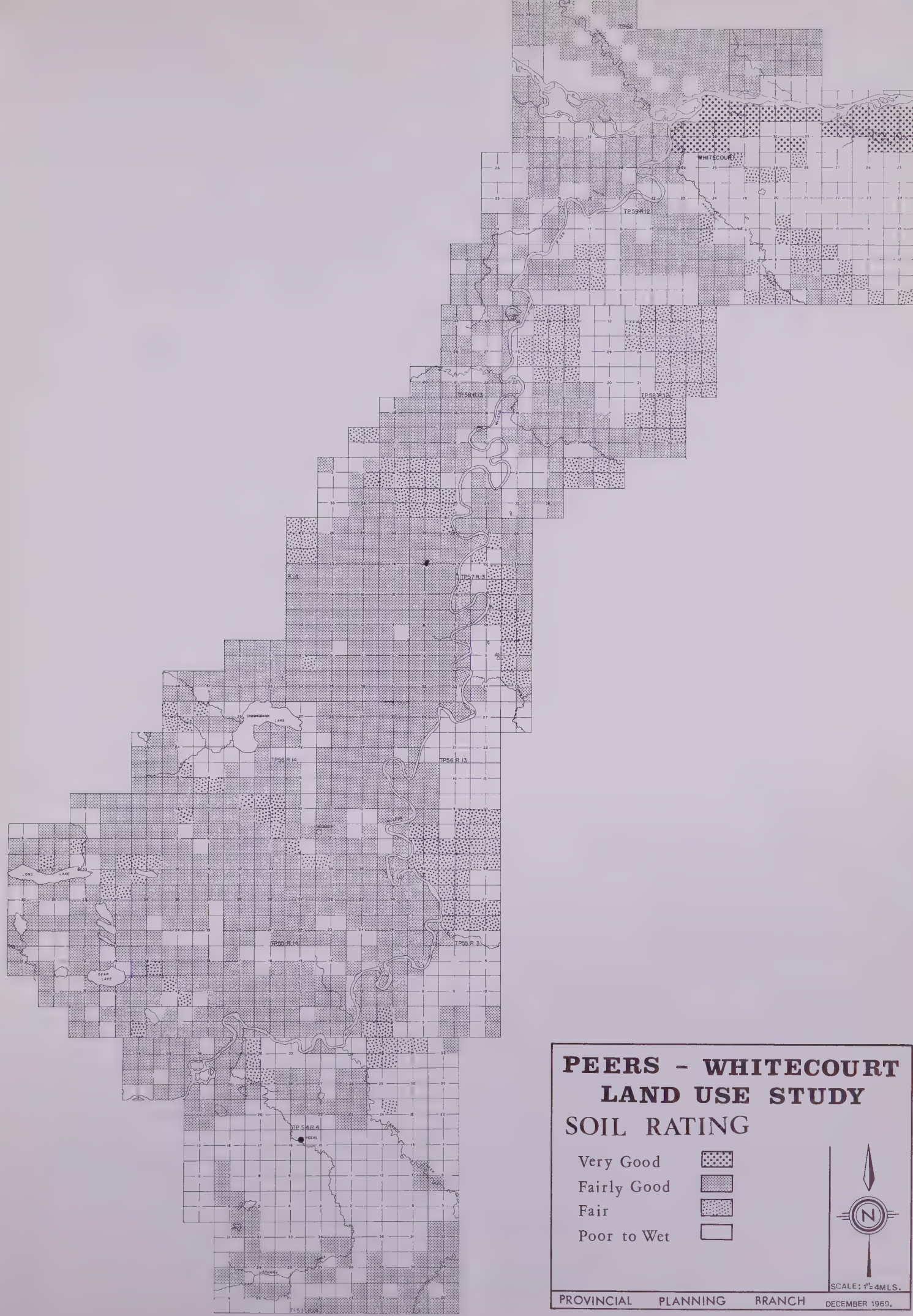
<u>CROPS</u>	<u>ACRES</u>	<u>% OF TOTAL</u>
Wheat	1,424	7.5
Oats	3,605	18.4
Barley	2,509	12.8
Summer Fallow	2,536	12.9
Forage Crops	<u>9,466</u>	<u>48.4</u>
TOTAL	19,540	100

This illustrates the variety of crops being marketed and their relative proportions. The emphasis in 1966 was on forage crops and pasture; this should be continued and even increased. There has been a trend towards livestock raising in most marginal areas and it should be considered by the farmers of this area. A number of farmers have already begun to look in this direction.

Finally, the methods being applied to farming in the majority of cases have not been sufficiently developed to make farming a profitable venture. In many instances subsistence living is all that can be achieved. The majority of the problems stem from lack of education or even more lack of capital. The knowledge of farming is often passed from one generation to another, resulting in the failure of some of these farmers to grasp new innovations that would improve their situation. However, the number of these farmers is slowly decreasing. Even if the level of education was of a sufficient standard, the lack of capital would prevent most local farmers from applying these new methods.

In summary, there are a number of farms in the area which qualify as economic units in terms of capital assets, technology and size. It is upon these farm units that the agricultural industry of the Peers-Whitecourt area should be based.

This report recommends that the livestock industry become the chief agricultural pursuit of the area. In order to support this industry, pasture, forage crops and some coarse arable crops should become the primary agricultural land use.



PEERS - WHITECOURT LAND USE STUDY SOIL RATING

- Very Good
- Fairly Good
- Fair
- Poor to Wet



SCALE: 1"=4MLS.

XII FORESTRY

Forest land use is the only alternative to agricultural use on the majority of the land within the study area. As mentioned in the section on vegetation, the climate and soil of much of the Peers-Whitecourt area are more amenable to forestry than to agriculture. The present land use map, as compiled by the Canada Land Inventory, indicates that forty-seven percent of the total area is productive woodland. In addition, thirty-six percent of the area is classed as non-productive woodland. Much of this latter class will eventually develop into productive woodland. Therefore, almost 83 percent of the total area has potential for the harvest of timber.

Certain areas, designated as Green Zones are reserved primarily for this type of use. The boundaries of this Green area are illustrated on Map "L", Settlement Areas.

In addition, the Forest Service has proposed the establishment of woodlots to serve the needs of rural residents. These woodlots are designed to provide fuel and building materials as an additional source of income. These areas are confined to forest use in practically all cases.

One of the purposes of this study is to provide guidelines in order to resolve the conflicts of use involving agriculture and forestry. This is outlined in the methodology section of the report.

The Timber Management Branch of the Department of Lands and Forests has prepared an inventory of the timber now present in the Peers-Whitecourt area. This information was obtained from aerial photographs, most of which were taken during

the period 1958 - 1963. Some change will have occurred since that time, but the difference is expected to be minimal. The inventory was conducted on a township basis, summarizing those areas of high forest productivity, potentially productive land and non-productive areas (this includes patented land). In addition, the inventory provided the volume of timber that existed at the time of photography. This volume was broken down into the two basic types of products, pulpwood and saw timber. Volumes listed as 4" - 9" or 4" - 5" D.B.H. are potential pulpwood while the remainder will be used for saw timber. Finally a summary of timber which is less than 4" D.B.H. but will eventually increase to a size that will allow future production is provided. Table XVII shows the timber volumes as they existed at the time of photography. The coniferous species referred to are black spruce, white spruce, balsam fir, lodgepole pine and jack pine. The aspen poplar and the balsam poplar are the only deciduous species in the area. Map "D" concentrating on vegetation, illustrates the distribution of the different types of trees. Table XVIII illustrates the Timber Management Branch's assessment of the potential of the land.

The forest products industry has existed for a number of years with varying degrees of success. It was not until 1954 that this industry began to dominate the economic base of Census Division 14 of which the Peers-Whitecourt area is part. During this year a pulp mill was established at Hinton. The industry will further expand should MacMillan Bloedel Limited construct a similar mill at Whitecourt. The production figures for the nine year period (1960 - 1969) illustrate the degree of development of the forest products industry.

T A B L E X V I I
FOREST INVENTORY OF AREA
(Gross Volume)

Township	Pulpwood and Sawtimber				Thousands of Cunits (4" + DBH)			
	Thousands of Cords (4" - 9", 4" - 5" DBH)		Millions of Board Feet (10" + 6" + DBH)		Coniferous		Deciduous	
	Coniferous	Deciduous	Total		Coniferous	Deciduous	Total	
60-11-5	11	117	128		7	41	48	200
60-12-5	44	94	138		34	41	75	259
60-13-5	107	127	234		32	41	73	337
59-11-5	22	34	56		19	46	65	170
59-12-5	22	64	86		14	44	58	181
59-13-5	81	127	208		29	63	92	350
58-12-5	12	59	71		12	46	58	170
58-13-5	48	136	184		36	74	110	364
58-14-5	123	185	308		53	47	100	450
57-13-5	13	20	33		17	77	94	204
57-14-5	5	26	31		24	150	174	354
56-13-5	23	18	41		19	36	55	95
56-14-5	1	7	8		3	38	41	83
56-15-5	7	22	29		26	131	157	322
55-13-5	10	6	16		25	46	71	147
55-14-5	2	9	11		5	36	41	86
55-15-5	7	14	21		20	83	103	211
54-13-5*	2	1	3		5	6	11	22
54-14-5*	5	3	8		3	15	18	42
54-15-5	9	5	14		9	24	33	74
53-13-5	2	9	11		7	28	35	76
53-14-5*	10	16	26		20	33	53	122
Total	566	1,099	1,665		419	1,146	1,565	4,319

* 1968 Forest Fire Losses Deducted

Note: 1 Cord = 450 board feet (F.B.M.)

1 Board foot = rough lumber 1 ft. x 1 ft. x 1 inch

1 Cunit = 100 cubic feet

Information Supplied By:

Timber Management Branch,

Department of Lands and Forests

1 Cubic foot = 5.29 board feet
D.B.H. = Diameter breast high,
the diameter of a tree at
4.5 ft. above average ground level

TABLE XVIII
FOREST INVENTORY OF AREA
Area (Square Miles)

Township	Productive Land	Potentially Productive	Non Productive Land	Total
60-11-5	18.2	0.3	18.2	36.7
60-12-5	21.9	0.9	13.9	36.7
60-13-5	26.9	0.4	9.3	36.6
59-11-5	17.9	3.0	16.0	36.9
59-12-5	18.0	1.3	17.5	36.8
59-13-5	21.9	0.2	14.7	36.8
58-12-5	22.7	5.1	8.8	36.6
58-13-5	25.1	4.5	7.0	36.6
58-14-5	36.0	--	0.6	36.6
57-13-5	16.2	7.1	13.3	36.6
57-14-5	30.4	1.9	4.3	36.6
56-13-5	15.1	3.8	17.8	36.7
56-14-5	8.8	1.7	26.2	36.7
56-15-5	28.4	1.5	6.8	36.7
55-13-5	12.8	0.9	23.0	36.7
55-14-5	10.3	0.9	25.1	36.3
55-15-5	17.8	1.3	17.7	36.8
54-13-5*	3.3	2.7	30.5	36.5
54-14-5*	3.4	6.4	26.8	36.6
54-15-5	7.9	1.7	27.0	36.6
53-13-5	8.2	0.2	28.2	36.6
53-14-5*	13.7	1.9	21.0	36.6
Total	384.9	47.7	373.7	806.3

* 1968 Forest Fire Losses Deducted

Information Supplied By:
Timber Management Branch,
Department of Lands and Forests

The Peers-Whitcourt area is covered by parts of four Forest Management Units. A breakdown of figures for the study area itself was not available. Therefore, all figures quoted are based on the total management units involved. Forest management units can be used effectively since quotes and other limitations are based on the entire unit. In addition, the figures of the larger area will give a good indication of the extent of this industry and the employment potential available to the study area residents. An indication of the proportion of each found in the study area is provided in Table XIX.

TABLE XIX
FOREST MANAGEMENT UNITS

UNIT	SIZE (ACRES)	IN STUDY AREA (ACRES)	PERCENTAGE OF TOTAL UNIT IN STUDY AREA
W-5	273,140	129,920	47.57
W-O-1	351,633	30,080	8.55
E-O-1	227,949	83,840	36.78
E-2	291,095	46,726	16.05

An insight to the various trends that have developed in the area under study is provided in Table XX. The northern area, unit W-5, has experienced a rapid decline since 1965 when the agreement between MacMillan Bloedel and the Province of Alberta came into effect. This unit is found within the MacMillan Bloedel Lease area. Prior to the agreement, this area was an excellent source of timber required for the manufacture of lumber. The majority of timber now

being harvested in this area is used for local needs.

The effect of the Hinton pulp mill is easily measured in the three southern most units of the study area. Over fifty percent of the timber harvested in these areas goes to Hinton for the production of pulp. The unit E-2 borders the reserve area granted to Northwestern Pulp and Power Limited. This company has utilized the timber being harvested in this unit at an average rate of 78.54 percent of all production per year over the ten year period listed in Table XX.

Unit E-O-1 also follows this trend although the percentage of the harvest used for pulp decreased by 50 percent between 1967 and 1969. Much of this unit contains a mixture of agricultural and forest lands; thus preventing the establishment of strong blocks of productive timber. The soil inhibits the growth of the trees to the point where the majority of species growing in the area will never grow large enough to be marketable as lumber. If the forest industry is to continue in this unit, concentration should be placed on the pulp market. This will be especially true should the Whitecourt mill commence operation.

The W-O-1 area is a good example of the flexibility that is exhibited by the forest products industry. In the period 1961 - 1966, the majority of timber taken from this unit was harvested in the southern area and shipped to Hinton for pulp. This was primarily due to good access between the area and Hinton. From the fall of 1966 to the present, the emphasis has switched to the harvest of timber for lumber. Much of this timber has been removed from the northern sector W-O-1. Excellent access to the mill at Whitecourt is an essential characteristic of this operation.

TABLE XX

FOREST PRODUCTION FIGURES

		1960 - 61	1961 - 62	1962 - 63	1963 - 64	1964 - 65	1965 - 66	1966 - 67	1967 - 68	1968 - 69
W - 5	Total Production	7,043,015	5,470,716	6,636,126	4,506,439	2,140,607	1,873,800	1,206,542	417,395	353,739
	(F.B.M.)									
	% for Pulp	13.41	6.91	11.45	39.77	36.78	16.71	29.32		3.18
	% for Lumber	74.93	86.48	65.91	39.22	51.97	59.77	50.88	57.29	41.31
	Value of all									
	Production (\$)	380,050.31	293,818.96	136,111.53	209,519.64	103,990.66	83,685.33	54,010.25	18,779.27	16,200.99
E - 2	Total Production	1,310,410	3,203,250	4,636,237	5,607,492	3,181,460	1,881,057	5,828,048	8,894,727	1,195,170
	% for Pulp	75.93	91.52	84.83	80.17	92.18	57.42	74.90	66.35	83.59
	% for Lumber	1.10	1.10	7.02	11.33	1.29	31.49	17.15	3.99	5.51
	Value of all									
	Production (\$)	53,239.70	124,856.50	188,899.41	228,903.40	123,773.90	79,777.30	232,854.30	386,194.97	45,292.00
W-O-1	Total Production	1,527,303	1,519,825	2,654,831	3,744,208	3,357,287	3,867,955	3,664,895	2,005,538	5,390,933
	% for Pulp	17.67	70.39	35.33	31.23	50.14	55.23	28.47	28.45	1.00
	% for Lumber	36.10	21.21	28.07	18.35	32.69	28.34	55.18	43.90	70.01
	Value of all									
	Production (\$)	68,017.16	63,129.52	115,537.85	153,465.46	148,089.48	172,180.02	184,902.25	88,611.50	247,212.17
E-O-1	Total Production	1,731,210	1,596,050	1,684,030	2,791,392	6,059,106	7,050,614	7,019,320	1,325,737	2,911,666
	% for Pulp	91.63	90.65	89.38	87.86	92.30	87.83	82.75	44.69	10.05
	% for Lumber	4.91	3.82	N/A	3.64	4.61	9.47	9.79	39.26	25.69
	Value of all									
	Production (\$)	67,886.40	75,943.00	66,499.70	109,842.68	239,496.43	285,437.91	282,542.57	228,206.50	120,078.83

Forest fires have not extensively damaged the major timber areas of the Peers-Whitecourt region. The two fires in 1968 were the only such occurrences experienced in this area during the past ten years. Fire number DW2-13 occurred to the south of the hamlet of Peers, on both sides of Highway 16. Just over 3,020 acres of the total 6,589 acres burned were productive woodland. Fire DW2-10 was located immediately north of Peers. The fire burned to the urban limits of this community. Over 11,830 acres were burned in this fire of which approximately 2,500 were productive woodland. The burned over areas are outlined on Map "D". Table XXI assesses the timber losses from these fires.

TABLE XXI
FOREST FIRE DAMAGE

<u>Fire No.</u>	<u>Total Area Burned Over (acres)</u>				Timber Volume Destroyed			
		<u>Pulpwood M Cords</u>			<u>Sawtimber MMFBM</u>	<u>M Cunits</u>		
		<u>Coniferous</u>	<u>Deciduous</u>	<u>Total</u>	<u>Coniferous</u>	<u>Coniferous</u>	<u>Deciduous</u>	<u>Total</u>
DW2-10	11,830	18	12	30	1	17	11	28
DW2-13	<u>6,589</u>	<u>28</u>	<u>15</u>	<u>43</u>	<u>2</u>	<u>28</u>	<u>12</u>	<u>40</u>
Total	18,419	46	27	73	3	45	23	68

The effect on the forest industry of the study area by the pulp mill at Hinton has been mentioned in a previous section. The effect of a pulp mill on Whitecourt would be even more imposing in the Peers-Whitecourt forest. In a physical sense, the forests in this study area and the surrounding region have barely begun to be

utilized to their capacity. This is indicated from the pulp production figures for the northern forest management units which supplied large quantities of pulp to the Hinton mill until the agreement with MacMillan Bloedel was signed. Since then the harvest of pulpwood has been virtually halted.

The effect on the forest areas would be extensive if the mill is built to the minimum standards agreed upon by the company and the provincial government. The minimum production is expected to be 150,000 tons per year. It is anticipated that the mill will produce in excess of the figure in the first full year of production.

The effect of this new industrial plant on the Whitecourt area is difficult to estimate. However, the experience at Hinton with the establishment of a pulp mill there can be used as an indication.

The Northwestern Pulp and Power mill at Hinton employed 1,000 people by the time it was completed. The mill paid out \$2.5 million in salaries in 1958 with \$2 million going to the mill workers and the remaining \$500,000 going to woodland workers. An additional influx of capital involved the purchases made by the mill itself (wood, chemicals, freight, etc.); this averaged \$13 million for the first two years of production. The townsite benefited to the amount of \$290,000 per annum from taxes on the mill. An extra \$65,000 was derived from the services that located in Hinton as a result of the construction of the mill.

It is impossible to make a direct comparison of the effect of the pulp mill on Hinton with the anticipated effect of the proposed mill on Whitecourt. Over 75 new businesses were established in the four year period (1954 - 1958). The New Town of Whitecourt will in all probability experience only half of this

growth. Many of the services not found in the hamlet of Hinton in 1954 are already established in Whitecourt. There is no doubt that the influx of population due to the plant itself will be large, but fewer service people will be required. The infusion of a significant amount of capital into the local economic base will probably have the most obvious effect on the Whitecourt region. Many rural residents will find jobs associated with the mill, thus supplementing their farm income. This should remove some of them from the subsistence category. Hopefully many of these people will move from the poorer farms into the urban area allowing other farmers to employ the land more efficiently.

XIII NATURAL RESOURCES - COAL, OIL AND GAS

Coal has never contributed significantly to the economy of the area, although several minor deposits have been worked near Whitecourt. Little is known about the character or extent of the deposits. Coal-bearing beds occur in the Edmonton formation which is part of the Upper Cretaceous. The coal in the area is classed as subbituminous B. Seams can be seen in many locations along the McLeod and Athabasca rivers. In the past, limited strip mining for coal has taken place in the following quarter sections: S.E. and N.E. 5-59-11-W5, S.W. 18-59-11-W5 and N.E. 24-59-11-W5.

Oil and gas have played an important role in the Whitecourt area since discovered in 1956. Small portions of the Carson Creek, Goodwin and Whitecourt gas fields exist in the Whitecourt area, and part of the Niton oil field protrudes into the southeastern corner of the study area. Although there are no other oil or gas fields located within the study area, several major ones exist nearby. These include Judy Creek, Carson Creek North, Windfall, Virginia Hills, Blue Ridge and Greencourt. All of these fields have had a beneficial effect on the development of Whitecourt. In fact, Whitecourt owes its present status to the discovery of oil and gas in the region.

Although oil and gas resources do not greatly effect physical planning in the study area, they do have considerable influence on the economic and social structure. Exploration is continuing throughout the area and it is expected that new fields will be developed.

XIV COMMUNITY DEVELOPMENT

(a) Whitecourt

The New Town of Whitecourt is the only major urban centre within the study area. The town covers ten square miles, spreading over townships 59-12-W5 and 59-11-W5. Within the study area, the town acts as a service centre for residents living north of Shiningbank Lake.

When Whitecourt became a New Town in 1961, over nine square miles were annexed in order to control development as the town expanded. Much of the annexed area is underdeveloped at present.

The present town is well equipped with the amenities of urban living. Sewer, water, electric power and natural gas are all available. The town has its own fire protection system composed of two pump trucks with a carrying capacity of 1,000 gallons and a volunteer force. The town water supply is taken from the McLeod River and is considered more than adequate by provincial health officials. A new thirty-four bed hospital also exists in Whitecourt. In terms of accessibility, the town is served by the Canadian National Railroad, a good highway and a small airstrip.

Education facilities are also available within the town for the town residents as well as the surrounding rural populace. Under the administration of the County of Lac Ste. Anne, two elementary schools, one Roman Catholic (grades 1 - 7) and one public (grades 1 - 6) as well as a high school (grades 7 - 12) have been constructed.

The economy of the New Town of Whitecourt was initially based on the lumber industry. Since 1955, the town has also acted as a service centre for a

number of oil and gas exploration companies. An active transportation service industry has also developed within the town. Whitecourt has become a popular stopping point for those people traveling to and from the Peace River country and more recently Alaska. Of these, only the oil service industries are in danger of decreasing; this is primarily due to the growth of Fox Creek which is closer to the oil and gas fields. In addition, should MacMillan Bloedel Limited construct the pulp mill they have planned near the townsite, a definite increase in population would occur (see Demography). The effect on the business section should also be quite substantial.

Therefore, it is conceivable that Whitecourt will dominate the northern section of the study area, if not the whole study area, should the pulp mill be constructed. Failing this, the town will still experience growth as a result of its diversified economic base.

(b) Unincorporated Communities

The hamlet of Peers, with a population of approximately 120, is located 5 miles north of Highway 16 on Highway 32. It is also situated on the main line of the C.N.R. between Edmonton and Jasper. January Creek runs through the centre of the community. Peers serves as a minor agricultural service centre for the local area. For major needs residents travel to Edson. The one elevator (capacity 27,000 bushels) in the community, operated by the Peers and District Co-op Elevator Limited, closed down in 1969.

It is not expected that Peers will show any significant growth in the future, and in all likelihood it will decline. Small service centres, such as Peers, are gradually disappearing throughout the Prairies as rural residents seek the better

services that a larger centre, such as Edson, has to offer.

Haddock, located 11 miles north of Peers on Highway 32 has a population of about 4. Until the summer of 1969 Haddock was the site of a rural post office. Today only two or three scattered residences exist.

Shining Bank is located about 1 1/2 miles northeast of Shiningbank Lake. Its population is estimated at 3 or 4. Like Haddock it served as a rural post office until the summer of 1969.

Mahaska is situated 7 miles north of Haddock on Highway 32. This locality is listed as having no existing population.

McLeod Valley, situated 6 miles north of Peers is also listed as having no existing population.

Pioneer, 1 1/2 miles northeast of Bear Lake is listed as having a population of 3.

XV METHODOLOGY

This study was initiated to provide guidelines for the disposition of Crown land in the Peers-Whitecourt area. In particular, there existed a requirement to set aside certain lands for country residential development. However, experience has shown that treatment of one land use out of context with other possible land uses is totally inadequate. Therefore, the framework of the study has been expanded to include all land uses in the study area. A method of determining the optimum land use for a particular area of land has been developed for the specific purposes of this study.

This method involved the utilization of Canada Land Inventory information in an attempt to determine the best physical potential of the land within the study area. To provide additional physical information the assessment data for the area was also included. At this point it was decided that the smallest unit at which a land use decision could be made was the quarter section. Each quarter section was investigated and rated in terms of each of the capabilities of the Canada Land Inventory as well as all available assessment data. This information was placed in storage at the Provincial Data Centre. It was then necessary to develop a system of uses and their priorities which was suitable for this particular area. Once these uses were determined, criteria were organized to translate the requirements into the terminology of the Canada Land Inventory and the assessment data. The final step was to feed the criteria for each use into the computer and have a search made for units that met these specifications. The following sections give a detailed description

of the three basic steps mentioned above:

- (a) Sources of physical data
 - (b) Selection of uses and their priorities
 - (c) Computer process
- (a) Sources of Physical Data

The prime source of physical data was the Canada Land Inventory. An introduction to the features of the Inventory is required to understand the method used to determine optimum physical land use. Principally, the Canada Land Inventory was established to analyze the potential of land within the settled areas of Canada. This was done for each of five categories: -

- (i) Agriculture
- (ii) Forestry
- (iii) Outdoor Recreation
- (iv) Waterfowl
- (v) Ungulates

It must be noted that the capabilities being analyzed are based on the physical nature of the environment being studied and its ability to support various types of land uses. In addition to the capability ratings, a present land use map was compiled.

Assessment data supplemented the physical capability information of the Canada Land Inventory. This information was only available for patented land and therefore, was not used in the computer system described later in the study. It did, however, supply important background information as to the physical capability of certain areas to support agriculture.

Assessment sheets provided the following information on a quarter section basis:

- (a) Acres of arable land devoted to the production of field crops whether cultivated or not.
- (b) Acres of pasture land devoted to grazing and in some instances native hay production.
- (c) Acres in bush and bush density which is rated light to very heavy.
- (d) Miscellaneous acres includes creeks, rivers, roads, railways, ravines, sloughs, pot-holes, rights-of-way for telephone, power and pipe lines, etc.
- (e) Soil group, any one of several broad groups of soil with fundamental characteristics in common. e.g.: grey wooded.
- (f) Subsoil refers to the B horizon of the soils. e.g.: solonetz.
- (g) Texture - the relative proportions of the various size groups of individual soil grains in a mass of soil. Specifically it refers to the proportions of sand, silt and clay. e.g. silty clay loam.
- (h) Topography rated from depressional to very hilly.
- (i) Stoniness - refers to the occurrence of stones on the surface and throughout the soil profile, rated from no stones to excessively stony (too stony to cultivate).
- (j) Final Percentage - established from the various factors contributing to or detracting from productivity. The percentage figure indicates the productivity of the soil on an average wheat yield basis compared to the ideal black soil with a final rating of 100 per cent.

(b) Selection of Uses and their Priorities

To determine the types of uses to be recommended in the study area and the priorities involved within each, a number of factors were investigated. The following factors were considered before a final use was proposed: social and economic demands, development policies of government agencies and private individuals, and the past record of the land itself.

The main point of interest within the socio-economic situation centred on farms and farm products. Under the present market situation the market for grains in economic quantities is almost non-existent.

It is generally accepted that diversification of production is necessary in this situation to allow farms to continue to function. Since the market has behaved in a cyclical pattern involving supply and demand, the current situation is not expected to continue indefinitely. However, a broader production base is recommended to farmers. In the Peers-Whitecourt Area, the poor market conditions only add to an already inhibited agricultural situation. Climate, especially a short frost free period, has always hindered intended agricultural pursuits. With crops that are harvested, the quality of the product is below that of other agricultural areas. It is primarily because of this performance that the study will recommend against any arable agricultural use on land other than the prime farm land of this area. A recommendation involving forage and pasture crops has been made for land of poorer quality. Even farmers on prime agricultural land should consider this type of diversification. Within the agricultural field, livestock would probably be the best agricultural endeavor. For the farmers in the area, a mixture of forage and

pasture crops combined with a limited growth of seed grains is probably the best solution. It is worthy of note at this time that a number of land units in the area are not suitable for any type of agricultural crop.

Another aspect of the social and economic analysis focused on recreation. Presently the area has very little land suited to outdoor recreation. Considering the current trend of increasing emphasis on recreation, this study attempts to select the areas best suited to outdoor recreation and provide some general development guidelines.

In the second phase of the analysis, an attempt has been made to establish the demands of the local people as well as determine the policy and wishes of local and provincial administrators.

The Department of Lands and Forests is interested in the disposition of Crown land. The study area is located adjacent to the border between the White and Green Zones (see Map L, Settlement Areas). Consequently a conflict between land uses has arisen. It is hoped that the results of this study will be used as a guide to future land use decisions in an attempt to resolve this conflict.

Many residents feel that the rigidity with which the Green Zone boundaries are upheld is unfair. Thus, the lack of Crown land available for disposition prevents them from establishing more economic farm units. The decision as to the proper size of an economic farm unit is determined by the Farm Adjustment Committee.

It is worthy of note at this time that the land under study is part of a larger A.R.D.A. project. The A.R.D.A. co-ordinator and his staff have been instrumental in improving farm operation and some of the results of this report are directly due to

A.R.D.A. policy and its application by the local administration. Research done by other departments has also been incorporated into the analysis leading to the final recommendations. In particular, the location of the Proposed Secondary Highway by the Department of Highways and Transport and the Dam and Canal system proposed by the Water Resources Division of the Department of Agriculture were considered.

The physical capability is the most limiting factor in the area. Climate is a definite hinderance because the frost-free period is too short to permit successful crop production over a period of years. The assessed capability of the land (final percentage) averages out to 34.75%. The best land in the area is rated at 62% and the poorest land is rated as low as 10%. These figures indicate that even under the best of conditions, agricultural pursuits are of a marginal nature. On the other hand, the use of the land for some type of forest industry is quite reasonable. This is illustrated by the fact that the Town of Whitecourt may have a pulp mill built near or within its boundaries in the next few years. The study area has some of the best timber potential in the Province, a fact that must be considered in evaluating uses.

Based on the criteria mentioned above and considering the format of the data to be used as source material, it was possible to delineate seven prospective uses: Outdoor Recreation, Forestry "A", Agriculture "A", Forestry "B", Agriculture "B", Forestry "C", and Country Residences.

In discussing the variations in ratings of the different capabilities, it is important to realize that it is not the class number that is being compared. Rather the value of the capability in its entirety as compared to the other capabilities. The rating of recreation above forestry based on the social and economic situation

illustrates the type of comparison made. A '4' rating in recreation was of higher priority than a '3' rating in forestry. The factors involved in this type of priority included the demand of the local people for recreation areas and the fact that a great deal of similar timber was available in areas other than those in recreation '4'. What this means is each capability is evaluated as to its importance to the land use of the study area. Then the different classes within the capability are evaluated. It is on this basis that a comparison of classes represented by numbers occurs.

When reading the following uses, it should be recognized that they are listed in order of priority with the highest first. When the search is made, any unit already designated for a specific use cannot be assigned a lower priority use.

1. Outdoor Recreation - It was decided that since there was a lack of outdoor recreation opportunities in the area, it would be desirable to establish a variety of facilities. The local people expressed a desire for these facilities and such development falls in line with A.R.D.A. and Provincial policies. These areas were not to be too extensive since they were only to fill the need for one or two day recreation periods. In terms of the Canada Land Inventory, the highest recreational rating was a '4'. Since there was little of this in the area, it was necessary to set this land aside to meet the current and future demands of the community. All other land capability ratings were ignored if a '4' in outdoor recreation occurred.
2. Forestry "A" - Within the study area, there exists a conflict between agricultural and forestry land use. The high rating of forestry capability

(as high as any in the province) has indicated that some of this land, although no longer in the Green Zone, is still better suited to forestry. In keeping with the policy of integrated land use, complementary uses of these lands include recreation, wildlife production and watershed protection. Only selective cutting* to maintain the quality of the timber is recommended.

In the Canada Land Inventory classification, the land represented by Forestry 'A' is land rated as Class '3' Forestry. Therefore, any forestry capability '3' that does not have a Recreation '4' rating will be classed as land best suited for forest growth.

3. Agriculture 'A' - Agriculture is the third prime use in the area. As mentioned earlier, there is an ever increasing demand for Crown land to be used for farming. The quality of soil and the short frost-free climate are not amenable to the growing of arable crops. They are more suitable to forage and pasture crops. Livestock oriented production is suggested for the farms of this area. It is conceivable that some farmers will insist upon trying to grow seed grains to some extent. From their own experience and that of nearby farmers, they will realize the yield per acre will be small as compared to other areas with milder climates. Thus agriculture is only given the third priority. Even then, only top agricultural land was rated suitable for this form of land use. Only areas with a '4' rating and a limitation of 'd'** were considered

* Selective Cutting - the cutting of trees that are mature or defective, or of inferior kinds to encourage the growth of the remaining trees in the forest at the discretion of the Timber Management Branch, Alberta Forest Service.

** Limitation 'd' - undesirable soil structure or low permeability.

desirable for arable crops of any kind. Since the 'd' limitation is the least restrictive for this type of production, any seed grains grown should be oriented towards a local livestock industry.

4. Forestry 'B' - The type of land found within this classification is unable to support high quality timber or any type of arable agriculture. However, the prime use should be forest production, in particular pulpwood. A possibility of mixed use is recommended. Possibly some clearing for better pasture should be encouraged. Within the Canada Land Inventory, this type of land would be rated Class '4' in forestry and a range of 4 through 7 in agricultural capability.
5. Agriculture 'B' - Again, this is a classification which would allow a mixture of uses. The prime uses should be agriculturally oriented, preferably forage crops or pasture with considerable clearing allowed.

The Canada Land Inventory classes which meet these requirements involve ratings of '5' in agriculture with '5' and '6' in forestry.

6. Forestry 'C' - This category is one designed for land which is undesirable for any of the above mentioned uses. Generally the ratings are in the '5', '6', '7' and '0' classes, with limitations which would be a handicap to almost any type of crop. It was rated best suited for forestry because pulp wood can be taken off such land in small quantities. It is possible that this type of land would be suitable for unimproved pasture as well. There are a large number of land units which are classed as swamp or muskeg which could support livestock on a small scale.
7. Country Residences - The demand for country residences in the Whitecourt

TABLE XXII
PRIORITY RATINGS

		Canada Land Inventory Ratings
1.	Recreation	
	(a) Agriculture Capability	Any
	(b) Forest Capability	Any
	(c) Recreation Capability	4
	(d) Ungulate Capability	Any
	(e) Waterfowl Capability	Any
2.	Forestry 'A'	
	(a) Agriculture Capability	Any
	(b) Forestry Capability	3
	(c) Recreation Capability	5, 6, 7, 8
	(d) Ungulate Capability	Any
	(e) Waterfowl Capability	Any
3.	Agriculture 'A'	
	(a) Agriculture Capability	4d, 4d9, 4d8, 4d7
	(b) Forestry Capability	4, 5, 6, 7
	(c) Recreation Capability	5, 6, 7, 8
	(d) Ungulate Capability	Any
	(e) Waterfowl Capability	Any
4.	Forestry 'B'	
	(a) Agriculture Capability	4m, 4s, 4t, 5m, 5c, 5d 5t, 6m, 6t, 0
	(b) Forestry Capability	4m, 4w, 4x
	(c) Recreation Capability	5, 6, 7, 8
	(d) Ungulate Capability	Any
	(e) Waterfowl Capability	Any

(Con'd.)

5. Agriculture 'B'

- | | |
|----------------------------|------------------------------|
| (a) Agriculture Capability | 4m, 4s, 4w, 5c, 5m
5w, 5t |
| (b) Forestry Capability | 5m, 5w, 5x |
| (c) Recreation Capability | 5, 6, 7, 8 |
| (d) Ungulate Capability | Any |
| (e) Waterfowl Capability | Any |

6. Forestry 'C' (Process 1)

- | | |
|----------------------------|-----------------------|
| (a) Agriculture Capability | 6m, 6t, 6w, 7w, 7t, 0 |
| (b) Forestry Capability | 5, 6, 7 |
| (c) Recreation Capability | 5, 6, 7, 8 |
| (d) Ungulate Capability | Any |
| (e) Waterfowl Capability | Any |

Forestry 'C' (Process 2)

- | | |
|----------------------------|----------------|
| (a) Agriculture Capability | 5c, 5m, 5w, 5t |
| (b) Forestry Capability | 5u, 6, 7 |

7. Country Residences

(see page 100)

Forestry 'C' was broken into two sections to allow different combinations of Agriculture 5 and 6 and Forestry 5 and 6 to be identified.

area is quite extensive at the present time, and current trends show a definite increase in interest. In this study, an attempt will be made to indicate quarter section units that would be suitable for this type of use. The process involved in selecting sites for country residences is discussed in section XVI.

(c) Computer Process

The computing program used in the Peers-Whitecourt Land Use Study is known as the System 360/Document Processing System. It was supplied by I.B.M. of Canada to the Provincial Data Center who in turn made it available to the Provincial Planning Branch.

The principle on which this program operates is based on a system of keywords. The system works on a series of indices consisting of the location of each keyword with respect to its neighbours, each sentence in its paragraph and each paragraph within its document. In addition, an index of the number of occasions a keyword appears in an entire file of documents is provided as well as the location of each appearance.

It is not only the appearance of keywords that is important. The proper context is usually necessary before the keyword is considered. This system allows the position of a word in relation to other keywords to be assessed; this is the contextual outlet of the program.

It is the feature of finding keywords in a certain context that necessitated the need for using D.P.S. in the study. The Canada Land Inventory information for each land unit was presented in phrases. In each phrase, the type of classification (i.e. agriculture, forestry, etc.); and the dominant class were included as

well as the limitations or attributes of the particular land unit. The percentage of the various class ratings per unit was also found in this same phrase. At different times during the data analysis, only parts of this information were required. D.P.S. has the ability to pick words from a particular location within each of these phrases.

Another feature of the D.P.S. package which was valuable to this study, involved the ability to work within ranges of numbers or letters. This is of particular assistance in analysis of assessment data.

The final attribute of D.P.S. is the open ended feature available to the system user. The user has the ability to disregard irrelevant information in the midst of a study such as this. No change in processing is required. In the Peers-Whitcourt Study, a great deal of testing was carried out on the data. Once the results were analyzed, it was discovered that certain sections of the input were unnecessary; in all future calculations this data will be ignored.

There were two problems with D.P.S. that have not as yet been overcome. The first - the inability to do calculations - is a characteristic of the system which cannot be changed. It would be helpful to be able to calculate within the system but it is not necessary in this type of study. The second problem involves the format of the output. For purposes of clarity, it would be desirable to have output in the form of horizontal tables. D.P.S. as it now exists, prints only in vertical format (see Table XXIII). At nineteen lines per land unit, it is easy to understand the unwieldiness of the output. This factor can be overcome by intercepting the output before printing and using a COBOL program to reformat the information into the desired horizontal form. Time has not permitted this factor to be established for the present study although future studies will have this characteristic.

TABLE XXIII

DOCUMENT PROCESSING SYSTEM PRINT OUT

GLEN LAFSERCH

1438 L1

QUARTER SWQ27-55-14-5

ARABLE

PASTURE 02500

BUSH 11500

FINALPRC

RECCAP 5UQOP

TEXT

MA#FC 4M

MA#WC 6TF

MA#UC 6MN ME

MA#TO GR H

MA#AC 4D

MA#BD T2 T4

MA#MA 2100

MA#DI R RICAR

GLEN LAFSERCH

1439 L1

QUARTER SEQ27-55-14-5

ARABLE 03000

PASTURE 00500

BUSH 09497

FINALPRC 030

RECCAP 5UQOP

TEXT

MA#FC 4M

MA#WC 6TF

The following is a condensed version of the explanation of the I.B.M. System 360/Document Processing System Application Description.

The D.P.S. system was developed to allow searching through large volumes of data. "It condenses the information permitting a comprehensive yet discriminating survey in a minimum of time."¹⁶ The system has the capability of eliminating human error in both the entering of data and the retrieval of results. "D.P.S. can work on the original data, extracting keywords without human interruption. This helps preserve the original author's terminology in its original context."¹⁷ The logic of D.P.S. is illustrated by Diagram 1, page 91.

The keyword system described earlier is the basis of the system. The appearance or non-appearance of keywords is the key to retrieval. As well, modification in keywords is allowed during searches. Expansion forms of keywords are the prime modifications.

The basis for efficient use of D.P.S. is the keyword limitations that are instituted during the formation of the Dictionary. The installation management defines the minimum and maximum keyword sizes to be allowed. Shorter words are dropped during input processing and longer words are truncated to acceptable size. Words of little value such as prepositions, articles and pronouns are usually designated as "common words" and read into a table. These words are automatically

¹⁶ International Business Machines of Canada, D.P.S. Application Manual, page 1

¹⁷ Ibid, p.1.

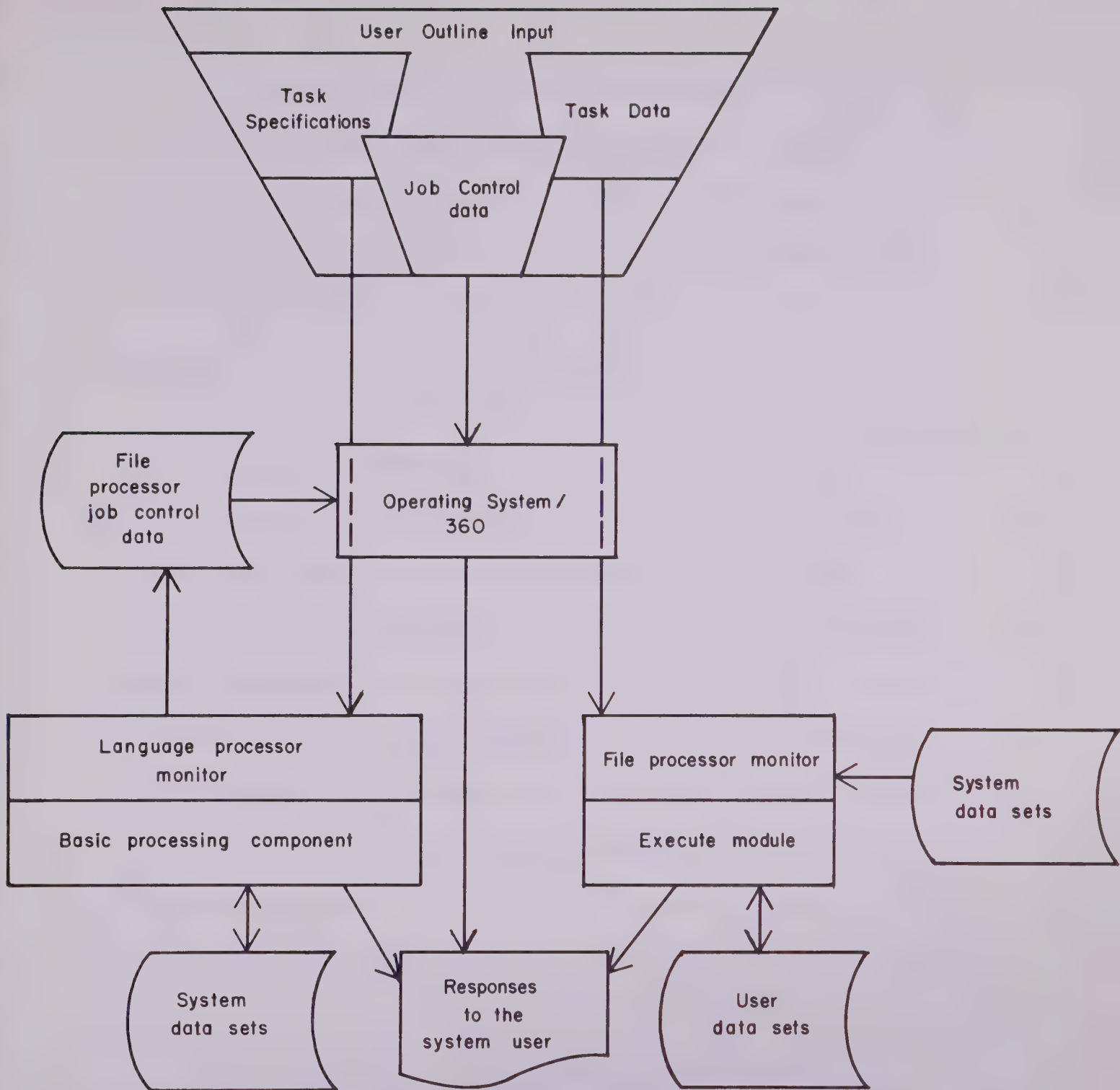


Diagram 1. Overall logic of IBM System/360 Document Processing System

removed from incoming documents.

The use of bibliographic data as an additional field of information is also available through D.P.S. Thus, fields of information describing the various types of data are given symbolic names which act as references during searches. These fields allow a more precise search to be utilized. This is especially true in the current type of study where nineteen fields of information are defined bibliographically to reduce time required for searching data bases.

D.P.S. is a system that depends, to a great extent, on programs controlled by the Operating System/360. It is OS/360 that co-ordinates the user and his data. The OS/360 initializes the program before passing it on to the D.P.S. Monitor. The Monitor interprets the task and chooses the appropriate Basic Processing Component (BPC) to implement the processing request. After examining available task control data, the "BPC selects an execute module of processing routines and inserts the appropriate Job Control Language statements into the OS/360 job stream to operate those routines."¹⁸

System/360 Document Processing has been designed around functional modules, each employing a set of routines. In the following paragraphs the capability of each functional module is explained.

Phase 1 - Input Document Processing

This input phase uses a variety of routines to automate the process of adding or deleting data base description (DBD's) wherever the installation adds or deletes

¹⁸ Ibid.p.5.

a major category of documentary information (Diagram 2-A). Also these routines develop intermediate data sets from the source documentation preparing an optional output list of new keyword card data taken from input material. The flow chart of the method of dissecting the data is found in (Diagram 2-B).

The input accepted by the system is read into it as an internally stored data base description (DBD). Every new data base must contain the following:

"Data base name

Input record and block size

Query and update security

Bibliographic - data field names and field size

Search work characteristics

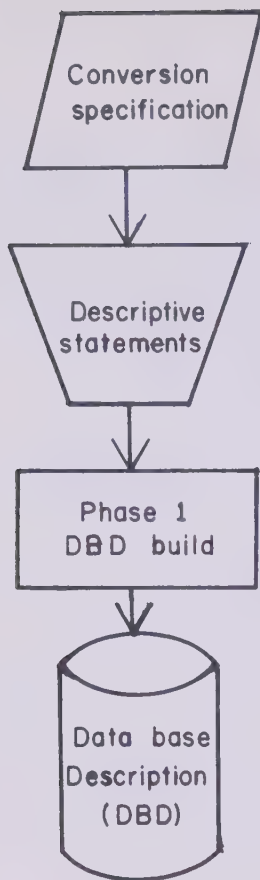
Selection of optional data sets

OS/360 interface data for all data sets"¹⁹

The Data Base Description occurs only in phase 1 and is stored internally for the use of other components. The following are the data sets affected by Phase 1 processing:

- (1) Dictionary - contains one entry per unique word in the data base. It supplies pointers to vocabulary and Synonym/Equivalent data sets.
- (2) Vocabulary - contains entries for each word in dictionary. Each of these entries contain document control numbers which indicate all appearances of a given word in the data base. The dictionary and vocabulary are combined to provide the "classical co-ordinate index".

¹⁹ Ibid.p.7.



(A) Data Definition step

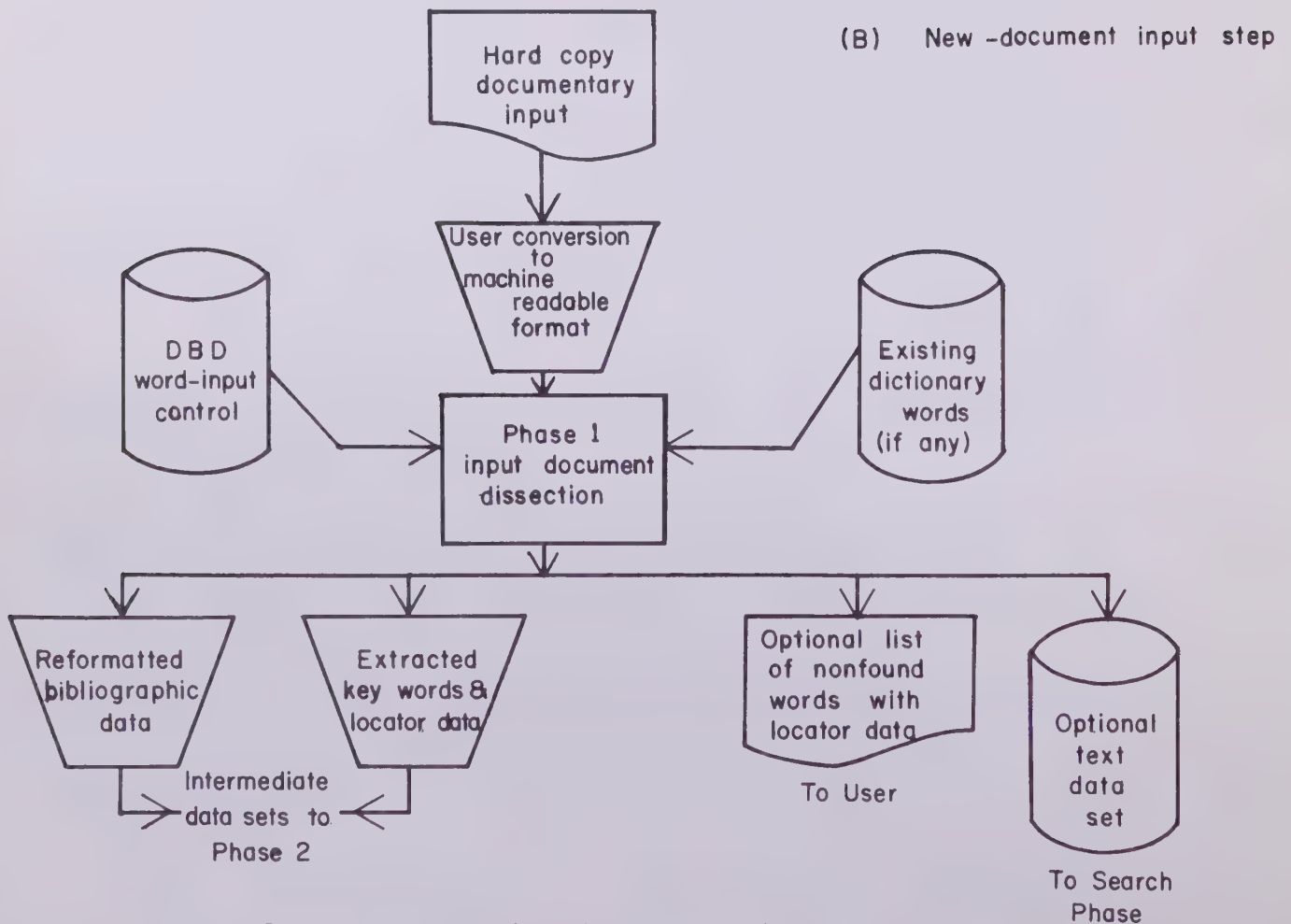


Diagram 2. Input processing phase 1 data flow

- (3) Master - contains a document control number for each document in the data base as well as the optional bibliographic data and the encoded text.
- (4) Synonym/Equivalent - this data set supplies substitution words to be used at search time instead of dictionary entries. The system user established two lists: list 1 for words that are synonymous and list 2 for terms that equate with the search word. (OPTIONAL)
- (5) Text - contains an entry for each document in the data base; this entry containing the full text for presentation at search time. (OPTIONAL)

The intermediate data set (Diagram 2-B) contains search words which are sorted into alphameric sequence. These are compared to the dictionary. If some words are not located in the Dictionary, they are presented to the user who decides on their disposition. This is the final step of Phase I.

Phase II

This step involves construction of the dictionary, vocabulary and master data sets (if none existed before) or enlarging of previously existing data sets. The intermediate data sets of Phase I are the source data for Phase II. Each new word is given an internal identifier, a word ID, before it is added to the Dictionary. The Vocabulary updates are added to the file, and the appropriate pointers of both Dictionary and Vocabulary files are noted reflecting the new word locations in the Vocabulary. Diagram 3 illustrates the data flow of Phase II.

Searches

All searches are based on keyword appearance and/or coincidence. These requirements are entered by the system user. Routines within the search module

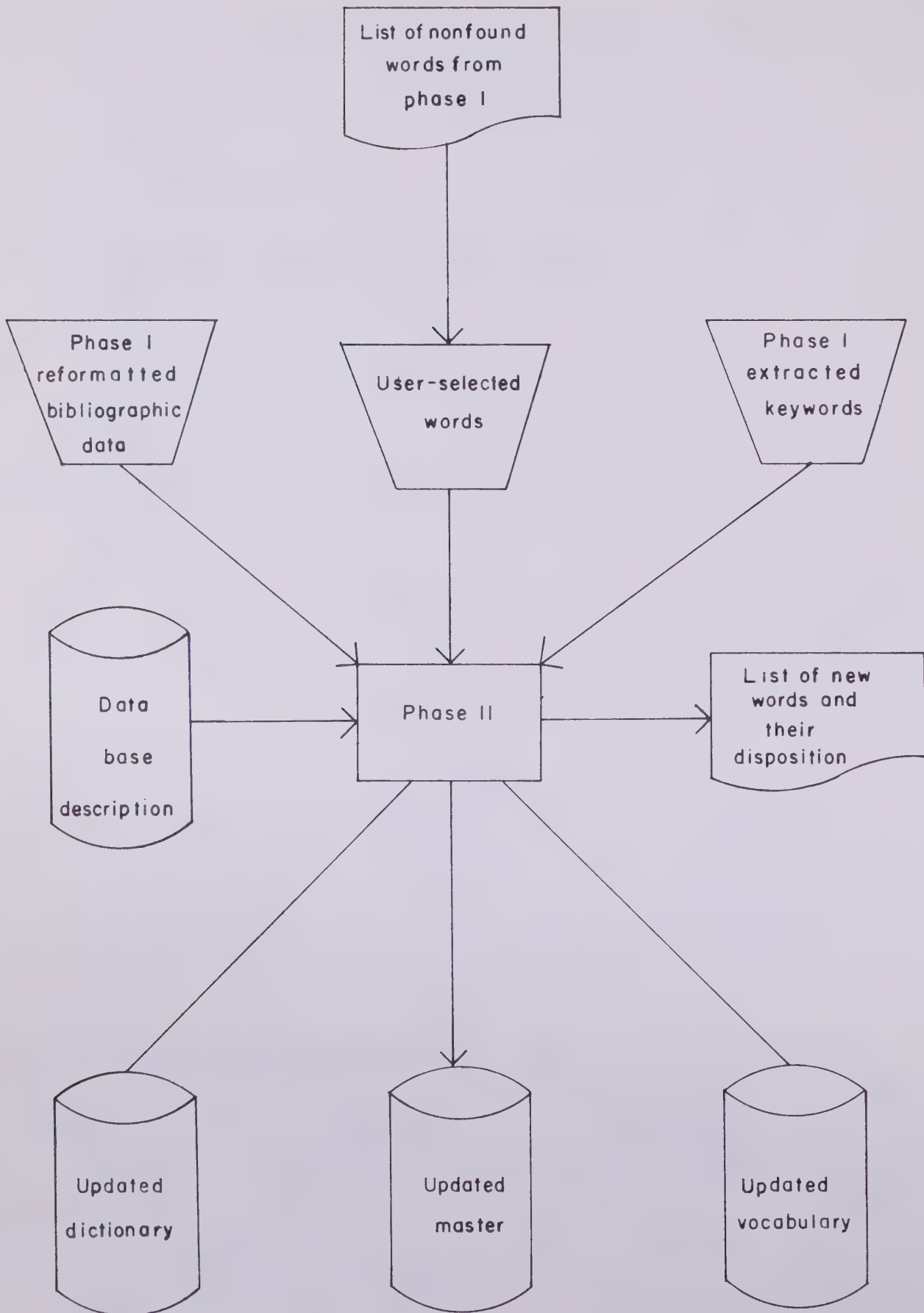


Diagram 3.

Input processing: Phase II data flow

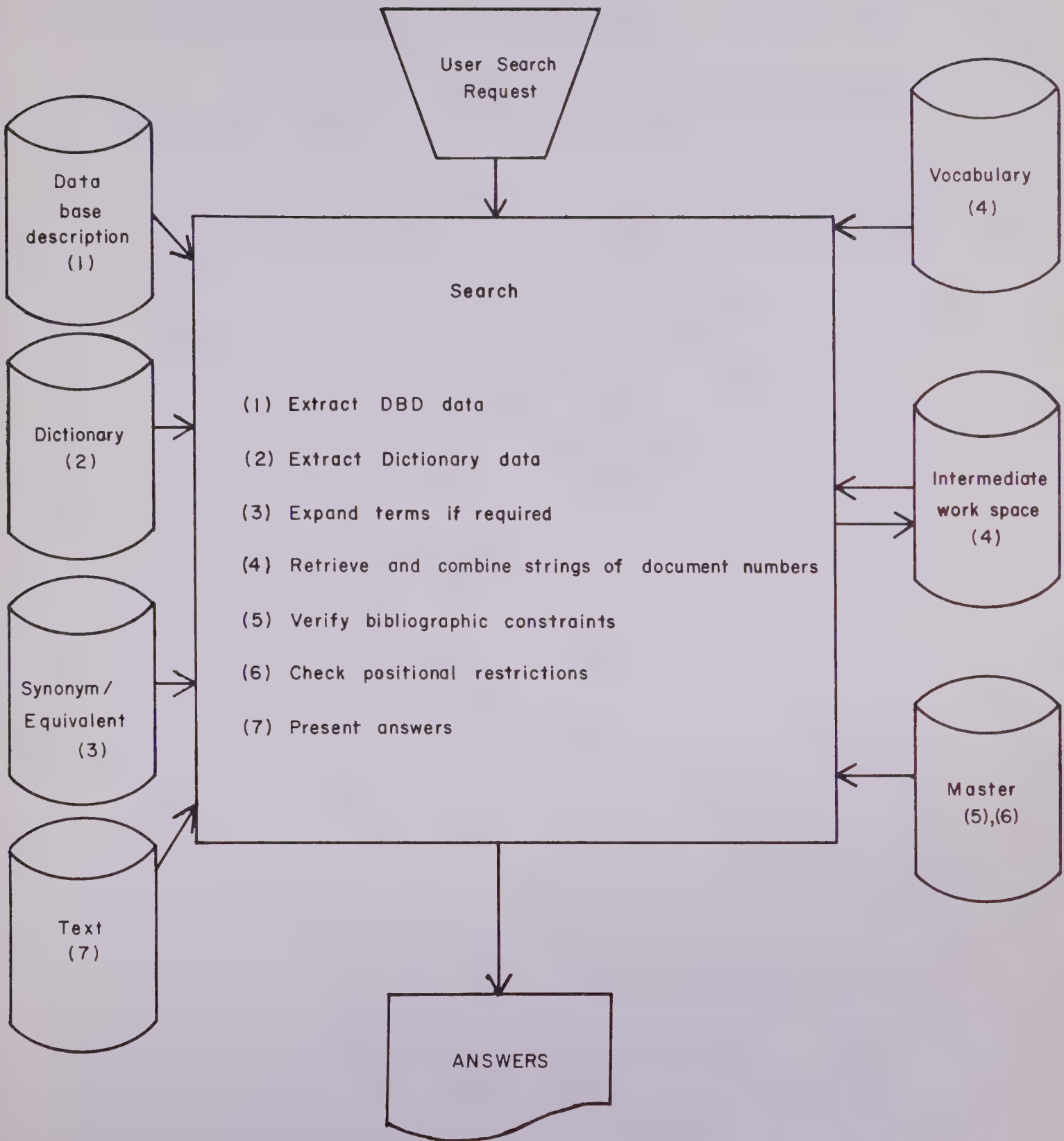


Diagram 4. Search processing data flow

react to the system-user search statements by interrogating the Dictionary of a particular data base and the related vocabulary and Master files . A "string" of Document numbers is assembled for each of the search criteria. The final step is the comparing of "strings" for appearance or non-appearance of words. The results are then printed out. Diagram 4 illustrates the various components involved.

XVI COUNTRY RESIDENCES

A prime objective of the study was to prepare a comprehensive policy on country residences (small holdings). The demand for country residences in the Whitecourt area has accelerated rapidly over the past few years. It is evident that the majority of people interested in building a residence in the rural area are not doing so to evade the high taxes of the New Town of Whitecourt. It is an established fact that for services provided, a non-agricultural assessment in the Improvement District could be higher than for a similar development within the town.

There are numerous reasons why urban people wish to live in a rural environment. Some families believe that rural living provides a more pleasing environment. Many urbanites seek the privacy that a rural setting offers. Some residents also believe that it is cheaper to live in the country than in an urban area (this concept will be discussed in detail later in the report). In some cases residents move to the country in order to supplement their income by part-time farming. In large urban centres such as Edmonton and Calgary, many residents seek rural parcels containing pasture land where they can maintain riding horses. Regardless of the motivations for building residences in the rural area, the demand for such development continues to increase.

The Canada Land Inventory was utilized in an attempt to indicate those quarter sections which were physically suited for development. The capability classifications were analyzed and lands having good potential for tree growth, variation in topography and relatively low agricultural capability were selected. These factors were determined from the capability classes and subclasses. The

analysis indicated that 127 quarter sections were physically suited for development .
(See Table XXIV.)

TABLE XXIV

Subclasses Suited for Country Residences

Agriculture Capability	5c, d, m, t 6m, t
Forestry Capability	4m
Recreation Capability	5e, o, p, q
Waterfowl Capability	6t
Ungulate Capability	2 and 2W 3

These quarter sections were further examined with respect to location, demand, accessibility, availability of electric power and telephone, existing land use, disposition, et c. The greatest demand for country residences certainly exists in the Whitecourt area, but a limited number of quarter sections may be required in the vicinity of Peers.

A study by the Calgary Regional Planning Commission, Country Residential Survey (1968), analyzed the site selection criteria of residents who moved to the country. "The three main reasons for choosing a particular site were the view, proximity to the city, and low cost of land. These were followed closely by tree cover, and access to a main road. Few residents expressed concern about recreational facilities, school locations, water supply, snow clearance, public utilities, lower

taxes or soil quality."²⁰

Although the latter factors were considered unimportant at the time the land was purchased, they undoubtedly became very significant once the owners moved onto the land. The report further points out that "view-sites with trees, located on rolling or hilly topography generally attracted the high income buyers. On level sites the frequency of parcel use for agricultural pursuits increased and a drop in the quality of housing was often observed."²¹

Having analyzed the above mentioned factors it was possible to select 38 quarter sections which were suited for country residential development. (See Map U.) These quarter sections were further analyzed using on-site investigation and air-photo interpretation in order to reach a final decision on those areas which possessed the greatest potential for development. Table XXV lists the quarter sections suited for development with relevant information pertaining to each.

²⁰ Calgary Regional Planning Commission, Country Residential Survey (1968), Calgary, Alberta, 1968 p. 35, 37.

²¹ Ibid.p. 37.

TABLE XXV
QUARTER SECTIONS SUITED
FOR
COUNTRY RESIDENTIAL DEVELOPMENT

Whitecourt Area

1. S.E. 20-60-12-W5 MBL maximum - 6 sites , upland area east of road to Carson Lake .
2. N.E. 17-60-12-W5 MBL maximum 3 sites , upland area northeast of river .
3. N.W. 16-60-12-W5 MBL maximum 6 sites .
4. S.E. 16-60-12-W5 MBL maximum 6 sites .

Areas 3 and 4 to be developed after development has taken place on 1 and 2.

Electric power can be obtained either from highway 43 or from transmission line east of section 16. Area 1 is approximately 6 miles from Whitecourt, 5 paved, 1 gravel. These sites overlook the Sakwatamau River.

5. S.E. 21-59-12-W5 patented (D. H. Whittaker) southern half of quarter section on top of the hill , maximum of 2 - 3 sites .
6. N.W. 16-59-12-W5 patented (D. Kallbom), part of quarter section on upland area , 2 - 3 sites depending upon amount of land already in agricultural use .
7. N.E. 17-59-12-W5 Crown, development to take place on upland area, 2 - 3 sites .
8. N.W. 17-59-12-W5 Crown, development to take place on upland area, 2 - 3 sites .

Areas 5 to 8 face northward and overlook the McLeod River and adjacent farmlands.

A splendid view can be obtained from this upland area which is approximately 200 feet above the river. The area involved is approximately 2 1/2 miles from Whitecourt.

9. N.E. 8-59-11-W5 Crown, Grazing Lease, maximum of 4 sites south of highway.
10. N.W. 8-59-11-W5 patented, (G. Tomlin), maximum of 4 - 5 sites east of Whitecourt Creek.
11. S.W. 8-59-11-W5 Crown, Grazing Lease, maximum of 3 - 4 sites east of creek.

Areas 9 to 11 are located approximately 2 miles southeast of Whitecourt on Highway 43.

The topography varies from undulately to gently rolling. The area contains good stands of jackpine, and at the present time limited cutting of this species is taking place.

12. N.E. 10-59-11-W5 MBL maximum of 5 - 6 sites.
13. N.W. 11-59-11-W5 MBL maximum of 4 - 5 sites, some muskeg in north-east corner of quarter section.

Areas 12 and 13 are located approximately 5 1/2 miles southeast of Whitecourt and about a mile north of Highway 43.

14. S.E. 9-59-11-W5 maximum of 4 sites south of highway, patented (J. Borisenko).
The area is located 3 miles southeast of Whitecourt on Highway 43.
15. S.E. 14-59-12-W5 patented, (J. Vangun), maximum of 6 sites. The area is located 1 mile south of Whitecourt, but 5 miles by existing roads.
16. S.W. 19-59-12-W5 Crown maximum of 4 sites, upland area, southeastern lowland area should not be developed.
17. N.W. 19-59-12-W5 Crown, eastern portion of quarter section, 3 sites.

18. N.E. 19-59-12-W5 patented, (W. Leary), western portion of quarter section, 3 sites.
19. S.W. 30-59-12-W5 patented, (Western Construction), portion of quarter section south of highway 3 - 4 sites.
20. S.E. 30-59-12-W5 patented, (W. Leary), southwestern portion of quarter section, approximately 3 sites.

Areas 16 - 20 offer a variety of topography and tree cover. It is important that detailed investigations be made of each quarter section to ascertain those portions which should be developed. Ideally, the area should be planned and developed as one unit; however, this may be difficult because of the number of owners involved. The area is located approximately 3 to 4 miles southwest of Whitecourt on Highway 32. Approximately 375 - 400 acres are involved.

21. N.W. 5-59-12-W5 Crown, Licensed timber berth, maximum of 5 sites.
22. N.E. 5-59-12-W5 Crown, Ranch, southwestern corner of quarter section, 2 sites.
23. S.W. 5-59-12-W5 Crown, MBL, eastern half of quarter section, 3 - 4 sites.
24. S.E. 5-59-12-W5 Crown, MBL, maximum of 5 sites.

Areas 21 to 24 should be developed as a unit. The area is located approximately 5 miles southwest of Whitecourt. Power comes to within a mile and a half of the area.

25. N.E. 36-58-13-W5 Crown, 4 to 5 sites.
26. N.W. 31-58-12-W5 Crown, 4 to 5 sites.

Areas 25 and 26 are presently inaccessible, however, if a demand exists they could be developed after areas 21 to 24.

27. S.W. 23-59-12-W5 patented, (P. Stratton), 6 sites.

Southern Portion of Study Area

28. N.W. 5-54-14-W5 patented, (K. Vriend), maximum of 2 sites, north-eastern part, western part is cleared.
29. N.E. 5-54-14-W5 patented, (A. Blackburn), northwestern part, 2 sites, remainder burned.
30. S.W. 9-54-14-W5 Crown, LTB, some areas partly burned, 3 sites.

Areas 28 to 30 are located approximately 2 1/2 miles south of Peers. (Nearest power at Peers.)

31. N.E. 35-54-14-W5 patented, (C. Bowness), northeast corner of quarter section, remainder is cleared, 5 miles northeast of Peers on McLeod River, 2 sites.
32. N.E. 3-55-14-W5 patented, (T. Campbell), wooded area west of Highway, 2 sites.
33. N.W. 2-55-14-W5 patented, (A. Lawry), wooded area, 2 sites.

Areas 32 and 33 are located 5 miles north of Peers on Highway 32.

34. S.W. 26-55-14-W5 patented, (R. Richardson), wooded area, 3 sites.
35. S.W. 25-55-14-W5, (H. Becker), wooded area, 4 sites.
36. N.W. 24-55-14-W5 Crown, Ranch, wooded area, 5 sites.
37. N.E. 34-55-14-W5 patented, (R. Neale), southern half of quarter section, 2 - 3 sites.
38. N.W. 35-55-14-W5 patented, (G. Conn), southern half of quarter section, 3 sites.

Areas 34 to 38 are located 1 - 4 miles south of Haddock.

As a result of the large area involved in the study it was impossible to examine in detail all those factors which will affect the country resident. Before an individual considers purchasing a country parcel he should investigate the components of the landscape discussed below so that costly mistakes can be avoided.

When establishing whether a particular area is suitable for a country residence, attention should be paid to the physical characteristics of the site. Price is of course a prime consideration in the selection of a site, but "bargains" in raw land often turn out to be costly in the long run. Excessive clearing, land unsuited for sewage and water facilities, poor soil and unfavourable drainage conditions may raise development costs considerably.

Before any home is constructed in a rural area the availability of an adequate water supply should be established. Where the water table is very low, or non-existent, establishing a supply of water may be expensive or impossible. Drilling costs will range between \$5 and \$10 per foot. A pump and tank will cost approximately \$175 for a shallow well and \$500 for a well in excess of 100 feet. There is also the possibility that in time the water bearing lens will dry up and the resident will be forced to redrill. In some cases it may even be necessary to have water transported to the site.

It is suggested that anyone contemplating purchasing land for the purpose of constructing a country residence should contact the Water Resources Division of the Alberta Department of Agriculture regarding the probability of obtaining an adequate water supply.

In the siting of any structure various climatic factors should be investigated. Each site has a general climate which it shares with the surrounding region and a

micro-climate which may be peculiar to a very small area. The general climate is expressed in a set of average data for a particular region, covering such phenomena as solar angle, days of sunlight, range of temperature, humidity, precipitation and wind direction and velocity. This information, detailed for each season of the year, has a basic influence on the orientation of structures and their shielding from or exposure to the sun. It is also a simple matter to determine building entrances and balcony locations to take advantage of cooling summer breezes while blocking chilling winter blasts.

Besides these factors, there are significant variations in the micro-climate of a site due to vegetative cover and topography. Wind speed and temperature will vary markedly within a few feet of elevation from location to location. Land which slopes in a northerly direction suffers from a diminution in the intensity of the sunlight falling upon it. The incidence of this disadvantage is difficult to determine in areas of intricate topography due to the overshadowing of some areas by others in a manner which is not simply related to aspect.

In the construction of a country residence it is important to realize the possibilities of soil movement. Up and down movements are usually related to swelling and shrinking of soil resulting from changes in moisture. Lateral or side-ways movements are usually the result of soil creep and are often related to seasonal variations in moisture conditions. When the soil swells it tends to move slightly downhill, and then when it dries it shrinks and cracks. The effects of soil creep can be very troublesome and create frequent and costly damage for the homeowner.

The serious effects of soil creep can usually be prevented by carrying the foundations of buildings to a depth below which creep is not effective. Aligning foundations so that creep may occur along the sides of the foundation without affecting the supports of the building will also help to solve this problem.

The drainage characteristics of soils are extremely important in areas undergoing development. Surface water runs off in the direction of the slope at a velocity proportional to the gradient. Therefore, installation of proper drainage facilities is necessary and requires a knowledge of the local ground water, the hydrology of the area, and the hydraulic conductivity of the various kinds of soils involved.

As country residential development will be occurring beyond sanitary sewage lines the soil should be able to adequately absorb and filter the septic tank effluent. If the soil and sub-soil are quite impervious to water the effluent may overflow onto the surface. On the other hand, there are some soils that allow waste water to move to extreme depths quite rapidly. Their capacity to filter waste out of water is low; consequently there exists a danger of contamination of water wells.

A 400 gallon concrete or fibre glass septic tank will probably cost between \$250 and \$300. Syphon tanks are normally selected for use where a 12 month service is required, particularly where winter temperatures are well below freezing. The syphon automatically controls the distribution of the effluent to the field in sufficient quantity to prevent freezing in the system. Pump out septic tanks are normally used in any climate where an electric pump system automatically disperses a controlled amount of effluent to the disposal area. Holding tanks are used in all climates where disposal of sewage and/or effluent to a field system is not practical

or is prohibited. The sewage or effluent is retained in the tank until it is necessary to pump it into mobile equipment for disposal elsewhere.

The prospective country resident should obtain the pamphlet Private Sewage Disposal, published by the Division of Environmental Health Services, Department of Health, Administration Building, Edmonton. This pamphlet will assist the non-urban citizen in selecting and installing a private sewage disposal system best suited to his needs.

One of the most important factors that should be considered is an evaluation of the soils. Soil properties such as texture, permeability, variation and arrangement of soil layers and soil drainage are among the most important. These properties directly affect soil stability and strength, corrosion potential and water transmission. Frost heave potential, soil bearing strength and shear strength are also affected by soil properties.

For building foundations in undisturbed soil the sands and gravels are best. Gravel is well drained and is a stable material. Pure sand is a well drained, good foundation material, but one that must be confined at the sides. Silt is treacherous and unstable when wet; it may dilate, and it heaves badly when frozen. It is, however, stable when dry or damp. Clay is cohesive when dry and stiff, but it is impervious and may slip, swell, or soften when wet. Soils of organic origin have little friction or cohesion, are marked by capillary action and elasticity and cannot support loads. Usually they must be removed and replaced by more suitable soils for building purposes.

Natural soils are almost always a mixture of these constituents and are irregularly deposited. Soil types may change within short horizontal or vertical distances and must be checked at many points. Where types are mixed considerably, the character of the worst must be assumed.

One of the most significant service costs to the country resident will be for power. Power in the study area is serviced by the Farm Electric Services Limited which is a system of consumer-owned co-operatives. Construction and installation costs are divided proportionally among the users on a particular line. Where a line is already in existence, any new user pays a proportionate share of the cost and a refund is made to the original users. The installation cost of line and poles to the resident is approximately \$0.44 a foot. A transformer and meter will cost approximately \$450.00.

The country resident will also have the additional cost of telephone installation. The cost of line and poles is approximately \$0.18 a foot.

Natural gas, oil and propane can be used for heating purposes. Gas is the cheapest heating fuel but it is not available in all locations. Many country residents will have to rely on oil or propane which are two to three times higher in cost than natural gas.

The dispersed nature and low-density of country residences will make it impossible to supply some services such as water, sewer, adequate fire and police protection and garbage collection. The lack of fire and police protection will probably result in higher insurance rates for the country resident.

Country residential living will undoubtedly result in higher transportation costs, and the family will probably require two automobiles. Assuming that the resident works in Whitecourt, commuting would consist of five or six return trips per week. It is also logical to assume that numerous additional trips would be made on weekends and during the week for miscellaneous activities.

Administratively, there are several aspects of country residential development that should be investigated. According to The Subdivision and Transfer Regulation, section 49, made pursuant to the Planning Act, country residential uses are classified as follows:

- "(a) rural parcels involving a block of a number of sites on land having special scenic and locational qualities and on which no intensified agricultural or small-holding pursuits are permitted;
- (b) rural parcels involving individual sites up to a maximum of six such sites in every quarter section of land where the predominant use is a rural residence and where minor agricultural and rural pursuits are permitted as subordinate uses."²²

It is intended that within the Peers-Whitecourt Land Use Study Area, sites suited for country residential development will combine the attributes of the above two mentioned points. The sites will, wherever possible possess special scenic and locational qualities and in some cases be capable of supporting minor agricultural and rural pursuits.

No more than six country residential sites should be permitted in any given quarter section.

²² Alberta (Government) The Subdivision and Transfer Regulation, pursuant to the Planning Act, Alberta Regulation 215/67, Queen's Printer, Edmonton, 1967, sec. 49, p. 22.

It is intended that all country residential sites be a minimum of 20 acres in size. The 20 acre parcel has several advantages. It maintains a low country residential density which gives some assurance of a sufficient water supply. The 20 acre parcel size will also prevent the fragmentation of a quarter section into numerous small parcels. Country residential development will be limited to several specific areas where there is no conflict with agriculture.

It is recommended that all country residential construction meet the standards of the National Building Code.

One of the basic criticisms of country residences is that they are subsidized by the farming population. The average farm may have a higher taxable assessment than does the average country residence, if it is assessed as a farm. However, this is primarily due to the larger area involved in the farm operation. On an acre to acre basis, land for both uses would be assessed equally. The present rural farm-land taxation policy represents the principle of ability to pay on the basis of potential agricultural productivity and not on the basis of services rendered or benefits obtained.

Property tax in Alberta is restricted to land and improvements. Virtually all land and improvements are assessed for taxation purposes under the Municipal Taxation Act, 1969, chapter 78. Section 2 of the Act states the following:

"10. "farm buildings" means the residence and other improvements used in connection with the raising or production of crops, livestock, or poultry or in connection with fur production or beekeeping and situated on land.

- (i) used in connection with the raising or production of crops, livestock, or poultry or in connection with fur production or beekeeping, and
- (ii) consisting of one or more adjacent parcels operated as a unit.

(A) by a person who derives from that activity thereon an income sufficient to provide a livelihood where the unit contains 20 acres or more or has been reduced to less than 20 acres by expropriation, or

(B) by a person who derives from that activity thereon his principal income where the unit contains less than 20 acres."²³

If the country residence meets the above criteria then the parcel will be assessed as a farming unit. That is, the farm buildings including the residence will be exempted from assessment. Assessment will be based upon the ability of the land to produce various types of crops. The agricultural capability of the land selected for country residences is relatively poor, and if these lands are assessed as farms then the taxes will be quite low. An effort has been made to select areas and parcels sizes which ensure that the assessment will be based on the value of the residence and not the agricultural potential of the land. In this way the country resident will be paying a significant portion of the municipal taxes.

The report recommends that country residential development take place on 38 specified quarter sections. However, applications will undoubtedly be received for development elsewhere. These applications should be reviewed on their own merits. It is conceivable that they can be accommodated within the overall plan for the study area. For instance, it is quite possible that retiring farmers may wish to sell their agricultural land yet maintain residences in the country. In these cases the required size could be less than 20 acres, so that the farm unit is not adversely affected.

²³ Alberta (Government), an act to amend the Municipal Taxation Act, Queen's Printer, Edmonton, 1969, chapter 78, section 2, p. 1.

The problems associated with country residential living have received considerable attention from the various agencies involved with development and municipal taxation in Alberta. It is hoped that in the near future a more equitable policy regarding the subdivision and taxation of country residences will be forthcoming. Until that time it is recommended that this plan act as a guideline for country residential development within the Peers-Whitecourt study area.

XVII RECREATION

The Peers-Whitecourt area has sufficient recreation potential to satisfy local requirements. The Canada Land Inventory land capability classification for outdoor recreation establishes 7.5 percent of the area as Class '4'. "These lands have natural capability to engender and sustain moderate total annual use based usually on dispersed activities."²⁴

Outdoor recreation development in the study area is very low in relation to the potential. Existing development is limited to a number of campgrounds. The Alberta Department of Highways and Transport maintains the following camp-sites:

- (a) McLeod Valley (23.7 acres), four miles north of Peers, Highway 32.
- (b) Whitecourt (3.4 acres), two miles east of Whitecourt, Highway 43.
- (c) Groat Creek (4.4 acres), eleven miles southwest of Whitecourt, Highway 32.

A small Improvement District park is operated at Bear Lake (N.E. 9-55-15-W5) and provides limited boating, swimming and camping facilities.

Outdoor recreation facilities available in the Town of Whitecourt include a nine-hole golf course, several playgrounds and the 197 acre Centennial Park, which has received only minimal development.

The ungulate capability inventory indicates an extremely high potential for the area. In fact, the forests around Whitecourt are considered one of the best hunting grounds in North America for moose, elk and deer. Approximately

²⁴ Canada Land Inventory, A.R.D.A., FIELD MANUAL, Land Capability Classification for Outdoor Recreation, Department of Forestry and Rural Development, June 1967, p. 9.

60 percent of the study area is rated Class '3' or better, and of this, 8.5 percent is rated as Class 1W. Class 1W indicates winter ranges on which animals from surrounding areas depend. This includes much of the flood plains (valley bottoms and hillsides) of the Athabasca and McLeod Rivers. Forestry and agricultural activities have converted large tracts of land into the desirable pattern of open space intermingled with patches of mature forest. Together these provide forage and shelter for wildlife. Livestock grazing on Crown land in these areas should be prohibited, for any significant removal of forage by livestock would noticeably reduce big game carrying capacities. In addition to the ungulates mentioned above grizzly and black bears are occasionally found within the region. Grouse, pheasant, partridge and waterfowl present limited hunting activity. Hunter access into the prime ungulate area around Whitecourt has been greatly enhanced by a network of roads which have been developed by private companies engaged in oil and gas exploration.

Fishing is another popular sport in the area. Although no statistics are available it has been indicated that the Athabasca River upstream from Whitecourt contains Dolly Varden trout and Rocky Mountain whitefish. The McLeod River and the Athabasca River east of Whitecourt contain yellow perch, Northern Pike and walleye.

The scenic McLeod River valley, although presently undeveloped, is ideally suited for recreation. The capability classification indicates that the entire length of the river is canoeable. Variations in the shoreline, tree cover, and terrain present an everchanging view which will enhance the enjoyment of any canoe trip. The meandering river has produced many interesting landforms, especially the high sandstone cliffs which are often covered with heavy stands of

poplar. Highway 32 between Peers and Whitecourt parallels the river and access can be made at numerous points. In addition, a major gravelled road parallels the river to the east as far north as 34-56-13-W5. With controlled cutting this road along the high east bank will offer some spectacular vistas.

The Athabasca River in the northern portion of the study area, like the McLeod River, has moderate potential for recreation, with canoeing rated Classes '4' and '5'. An area to the west of Whitecourt, focusing on a group of islands in the Athabasca River, should be placed in reserve for future recreational use. All additional areas of moderate recreation potential and/or high ungulate capability along the McLeod, Athabasca, and Sakwatamau Rivers should also be reserved for recreation.

(a) Whitecourt Mountain

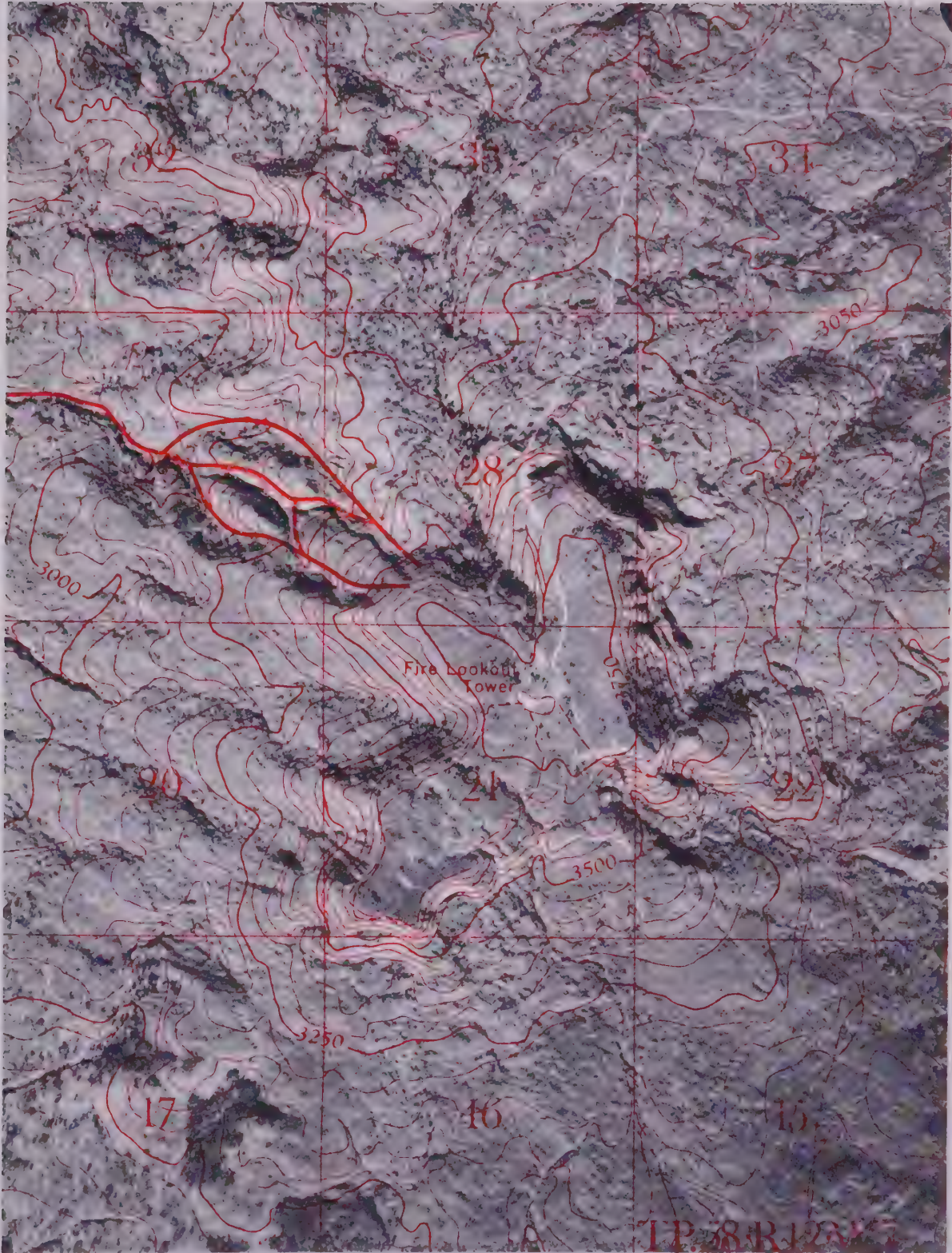
A feature of considerable importance for future outdoor recreation in the area is Whitecourt Mountain (House Mountain). The potential of the mountain was recognized by the early settlers but it has remained undeveloped. The Whitecourt News Recorder, on October 23, 1915, reported a visit made by local residents to House Mtn: "While climbing the eastern side the view to eastward takes in the country from beyond the Athabasca to Flagstaff on the south; the day was clear and as the travellers came to the highest northwest corner of the Mtn., they were delighted to find that no clouds enshrouded the Rockies to the west, but they rose in all their splendor and magnificance and made a gorgeous background for the vast stretch of country intervening." The summit of the mountain, at an elevation of 3,800 feet, rises some 1,300 feet from the McLeod River to the west. Whitecourt, at an elevation of 2,280 feet, is located by road approximately 10.5

miles north of the summit. A good gravelled road extends southward from the town for 7 miles and from there the summit can be reached by means of a rather steep dry-weather dirt road.

This study recommends that a portion of Whitecourt Mountain be reserved for a future Provincial Park. This proposed reserve includes Sections 15, 16, 17, 20, 21, 22, 27, 28, 29, 32, 33 and 34 of 58-12-W5. S.E. 22-58-12-W5 is privately owned. Assessment records indicate that the quarter section contains 16 arable acres and has a final percentage rating of 26. A portion of the summit, N.E. 21-58-12-W5, contains a fire lookout tower which offers a magnificent view of the surrounding countryside. Alberta Government Telephones, Canadian Broadcasting Corporation and Sunwapta Broadcasting Limited have transmitting towers located in this quarter section. The remaining quarter sections are located within the provisional reserve of MacMillan Bloedel Limited.

The soils of the proposed park reserve are primarily orthic grey wooded having parent materials of till and lacustrine. The vegetative cover of approximately 50 percent of the area is brushland. The remaining area is covered with sparsely to medium stock deciduous stands.

Although no recreation facilities presently exist on Whitecourt Mountain, a considerable number of local residents drive to the summit on weekends to enjoy the view. The mesa-like mountain has a table top of approximately 355 acres. This is ideally suited for development and could easily accommodate picnicing and camping sites. High wind velocities do occur, and development should take advantage of features of the vegetation and topography for shelter. Some thought should also be given to improvement of the forestry road.



**WHITECOURT MOUNTAIN
PROPOSED PARK RESERVE**

PROPOSED SKI RUNS 

CONTOUR INTERVAL: 50 FEET

SCALE: 2 inches = 1 mile

A possibility exists of developing Whitecourt Mountain into a major ski facility. The situation with respect to markets is ideal, both locally and regionally. Whitecourt is presently without adequate skiing facilities. The 1969 population was 2,852 and if the proposed pulp mill is built, the population is expected to more than double. A ski development would also have the advantage of good access to the Edmonton market. The proposed facility would be within 120 miles of Edmonton, 110 miles of which are paved. A major ski development, Silver Summit, is located 30 miles north of Edson but there is no direct road connection between the facility and Whitecourt. Silver Summit is 157 miles from Edmonton, 127 of which are paved.

A location check in 1966 indicated that Whitecourt Mountain would not be suitable for a large commercial development due to the fact that of a possible 600 feet of vertical elevation, the top 300 feet was too steep, while the lower 300 feet was very gentle. The Recreation Sector of the Canada Land Inventory indicates that the east slope of the mountain has the incline and surface suitable for a fairly large development. We feel that it may be possible to locate a ski development on the northwestern portion of the mountain (see accompanying photograph). The site which we have considered has a vertical drop of approximately 900 feet with a horizontal length in excess of one mile. Before any development takes place, a thorough investigation of certain basic requirements should be undertaken. Generally the slope should be concave, rather than convex, in order to hold snow. There should be a variety of slopes suitable for beginner, intermediate and expert skiers. (Slopes from 15% to 45%.) Average snow conditions should provide for a

moderately long season of use. An analysis should be made of existing climatic records regarding precipitation, temperature, wind direction and velocity. The presence of trees, especially coniferous, is important in order to cut down wind and erosion and to add to the attractiveness of the slopes. A final consideration should be an investigation into the possibility of installing snow making facilities.

Although it may not be feasible to establish a Provincial Park on Whitecourt Mountain in the immediate future, the 12 sections indicated should be placed under park reserve. Now is the time to make certain that future generations have adequate recreational land.

(b) Shiningbank Lake

Considerable interest has recently been generated regarding recreational development on Shiningbank Lake. The Lake, the only one of any significance in the McLeod Valley, is not suited for intensive recreational development, but a small portion of it should be developed for local needs. A demand for development certainly exists, for on weekends considerable use is made of a small portion of the shoreline for swimming, picnicing, boat launching and camping. The Lake covers an area of 1,180 acres and has a maximum depth of 21 feet. Fish species present in the Lake include: Northern Pike, yellow perch, walleye and lake whitefish. Good populations of perch and pike exist, but the walleye population is uncertain. The Lake is used extensively in the winter months for ice fishing. The Fish and Wildlife Division of the Department of Lands and Forests feels that the Lake could withstand moderate fishing pressure.

The recreational capability map of the Canada Land Inventory shows that the southern portion of the Lake is suited for recreation development. The extreme

southwestern portion of the Lake is rated Class '4' but this is probably too high, since some of the backshore is poorly drained. In fact the soils of this southern portion of the Lake, the western shoreline and the extreme eastern end of the Lake are classified as organic composed of moss peat and sedge peat which are poorly drained. The northern backshore of the Lake consists of orthic grey wooded till and low humic alluviated gleysol.

The area most suited for recreational purposes is located in the S 1/2 28-56-14-W5. The soil is well drained orthic grey wooded till. The backshore is covered with poplar from medium to heavy density and approximately 50 to 80 feet in height. This is in contrast to the remaining shoreline which is definitely lacking in tree cover. The topography is undulating to gently rolling.

It is proposed that a municipal park be established in the southwest corner of section 28-56-14-W5 (80.1 acres), a small portion of N.W. 21-56-14-W5 (8.5 acres), 1.3 acres in N.E. 20-56-14-W5 and 1.7 acres in S.E. 29-56-14-W5. It is also recommended that 80.7 acres in S.E. 28-56-14-W5 be developed as a cottage subdivision. This would commit a total of 172.3 acres to recreational use. (See accompanying photograph.) The proposed development area has 8,100 feet of shoreline. The offshore is composed of small boulders, rocks and pebbles inter-mixed with sand and has some weed growth. With minimal effort a beach suitable for family bathing and swimming could be developed.

Land assembly will be the greatest problem to be faced in the establishment of a park at Shiningbank Lake, since the land involved is presently under the ownership of four individuals. Although the assessed value of the land is quite low, the market value will be considerably higher and out of proportion with the actual

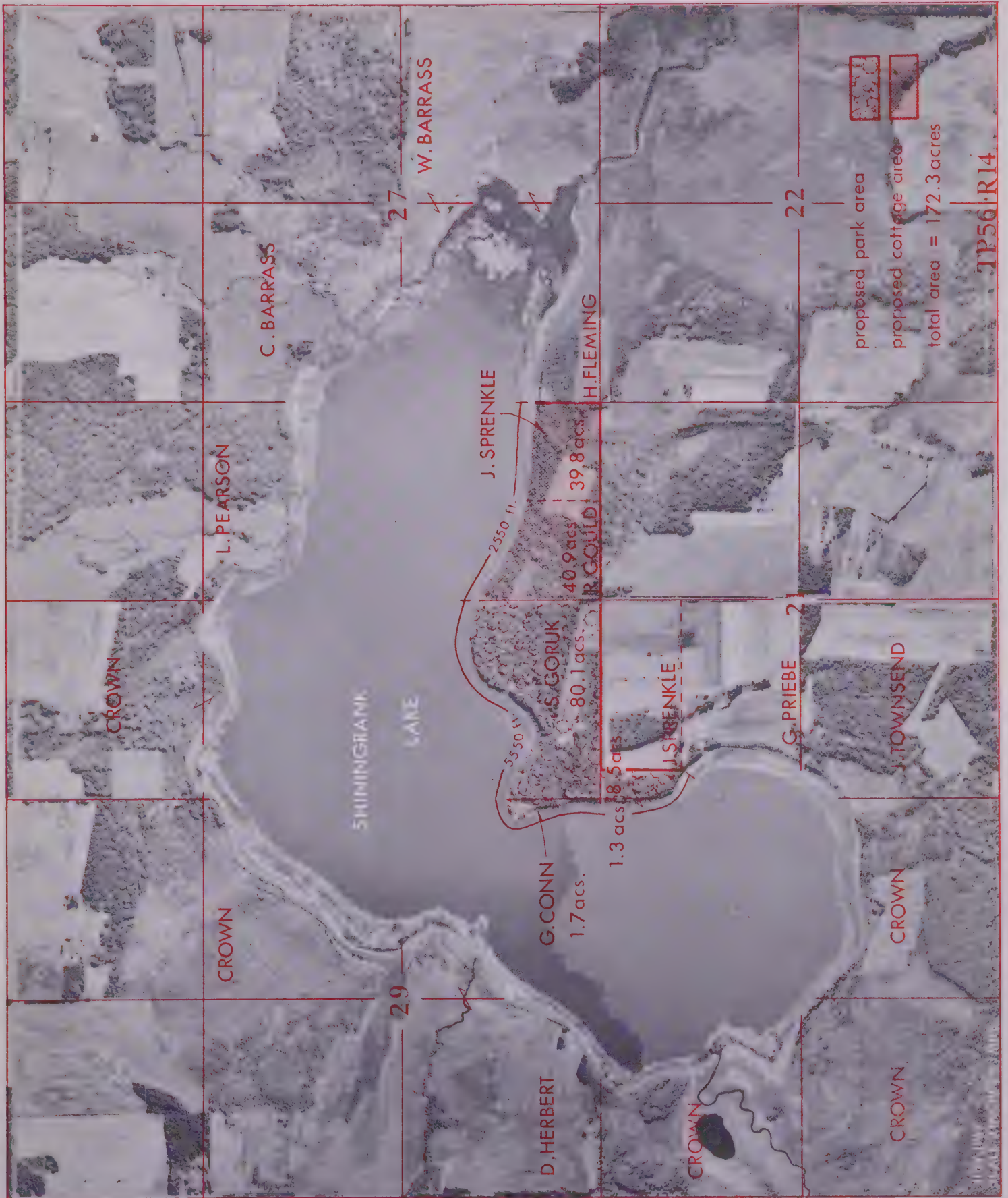
value of the land. According to the agricultural land assessment for 1967, the proposed area had a final capability rating of 28. This means that the soil is considered to be 28 percent as productive on an average wheat yield basis as the ideal black soil. This fact clearly indicated that there should be no conflict in land use between recreation and agriculture.

Recent experience has shown that it will be unlikely if the entire area proposed for development can be purchased. Mr. Goruk has indicated that he is willing to sell 10 acres of S.W. 28-56-14-W5 adjacent to Mrs. Conn's property. He wishes to subdivide the remainder of his land. If this is the case it will then be possible to gain additional land adjacent to the 10 acre park.

The Subdivision and Transfer Regulation, Section 19 (6), states that "where land is adjacent to a lake ... to be subdivided, reserves shall be provided as follows: (a) a strip of land of not less than 10 feet in width along the whole water frontage of the land to be subdivided and (b) at the discretion of the approving authority a park reserve or reserves occupying not less than one quarter of that frontage, having a total area which is not less than that of a strip of land 66 feet wide along the whole water frontage of the land to be subdivided, or 10 percent of the gross area of land to be subdivided, whichever is the greater."²⁵

The 1.7 acres, S.E. 29-56-14-W5, owned by Mrs. Conn involves a considerable amount of shoreline which would be a definite asset to the park. The

²⁵ Alberta (Government), The Subdivision and Transfer Regulation - Pursuant to the Planning Act, Alberta Regulation 215/67, Queen's Printer, Edmonton, 1967, Section 19, p. 16.



area of the proposed park, N.E. 20-56-14-W5 and N.W. 21-56-14-W5, owned by Mr. Sprenkle offers additional water frontage which again is very advantageous to recreational development.

The area of the proposed cottage development, S.E. 28-56-14-W5, is owned by R. Gould and J. Sprenkle. It is suggested that this area be obtained by the Provincial Government. If it is not feasible to purchase this land then the owners should be encouraged to subdivide the area. Before any subdivision is created it is important that a detailed analysis be made of the lake to determine the scale of development for which the lake is physically suited.

During the summer months weed growth in various sections of the lake is very extensive and could hinder boating activity. If the lake is to be developed as a recreation area, an important consideration would be the construction of a small dam at the eastern end of the lake in order to maintain an adequate water level for recreational activity.

Several agricultural leases exist on Crown land to the north and southwest of the lake. N.W. 20-56-14-W5 and S.E. 19-56-14-W5 located to the south-west of the lake are presently used for grazing.

The creek that supplies the lake flows through this area, and it may be necessary to terminate the grazing leases if water pollution affects the recreational activities. As much of the backshore as possible around the lake should be left in its natural state in order to enhance its recreational potential.

(c) Bear Lake

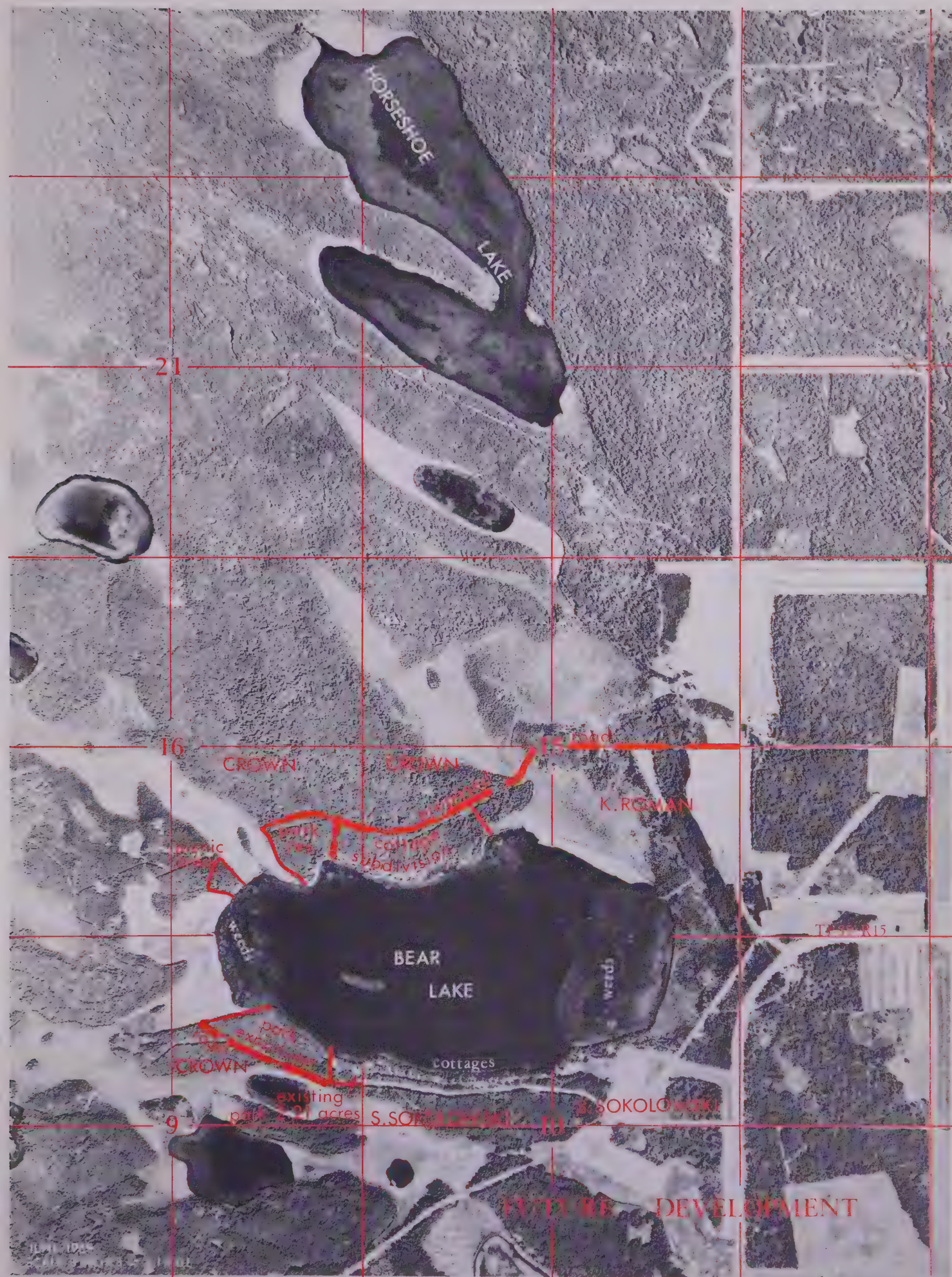
Bear Lake, located 12 miles northwest of Peers, is adjacent to a good gravelled road running from Edson to the Peers-Whitecourt Highway. There is no

indication of surface water other than local runoff flowing into the lake. It appears to depend on springs as its source of water. Approximately 25 percent of the back-shore is muskeg and treed muskeg while the remaining areas are covered with fully stocked stands of poplar averaging 31 to 60 feet in height. The soils are primarily orthic grey wooded tills with poorly drained organic soils composed of sedge and moss peats in the muskeg areas.

Although the Canada Land Inventory rates the lake quite low, it does have definite recreational potential. The shoreline is relatively weed free except for the muskeg areas at either end of the lake where there is extensive weed infestation. The water depth is sufficient to allow boating and related activities; however, due to the relatively small size of the lake (334 acres) water skiing is limited.

Existing development consists of a 20 acre cottage subdivision and a 2 1/2 acre municipal park. The subdivision consists of 27 sites of which 24 are located adjacent to the lake. It is unfortunate that this area was developed, for access to the lake from most of the cottages is impeded by a steep bank, approximately 20 feet in height. Cottages, wherever possible, should be built on the north or west side of the lake in order to obtain a maximum amount of sunlight. The winds in the area are predominately from the northwest and wave action is a hinderance to boating activity.

Most of the cottages are quite attractive and are well maintained. It is interesting to note that approximately half of the cottage owners are from Edmonton, while the remainder are from the Edson area.





Existing cottage subdivision, south side of Bear Lake, note:
steep bank - a definite hinderance to access



North side of Bear Lake - ideally suited to recreational development

The small municipal park provides facilities for swimming, boat launching, and picnicing. Although no statistics are available, it appears to be used primarily by people from Edson and the surrounding area.

Recent recreational use surveys have indicated that the activities undertaken at most lakes are, in order of importance: fishing, camping, boating, swimming and picnicing. It appears that the fishing potential of Bear Lake is quite low, consequently boating activity is limited to pleasure riding and some water skiing. Camping occurs at this park to a limited extent due to the local nature of the facility. Thus, picnicing and swimming are the activities attracting the majority of the park users.

A considerable extent of backshore is suitable for future development, but it must be remembered that the lake itself can withstand only limited use. It is the opinion of some individuals that the lake is already over-used and has reached a point of saturation. Before any development takes place it is suggested that a detailed survey and evaluation be made of the present use of the lake.

If the proposed study reveals that the lake is not over-used, then additional areas could be developed as required. It is suggested that the first stage of development would take the form of park expansion to the west of the existing municipal park. The area has good tree cover, adequate drainage, and is well-suited to camping. It is also proposed that a small picnic site be developed on an isolated point of land in the northwest corner of the lake (see photograph for Bear Lake). Although both sides of the area consist of muskeg the site itself is sufficiently elevated to permit development. The site would provide boaters the opportunity

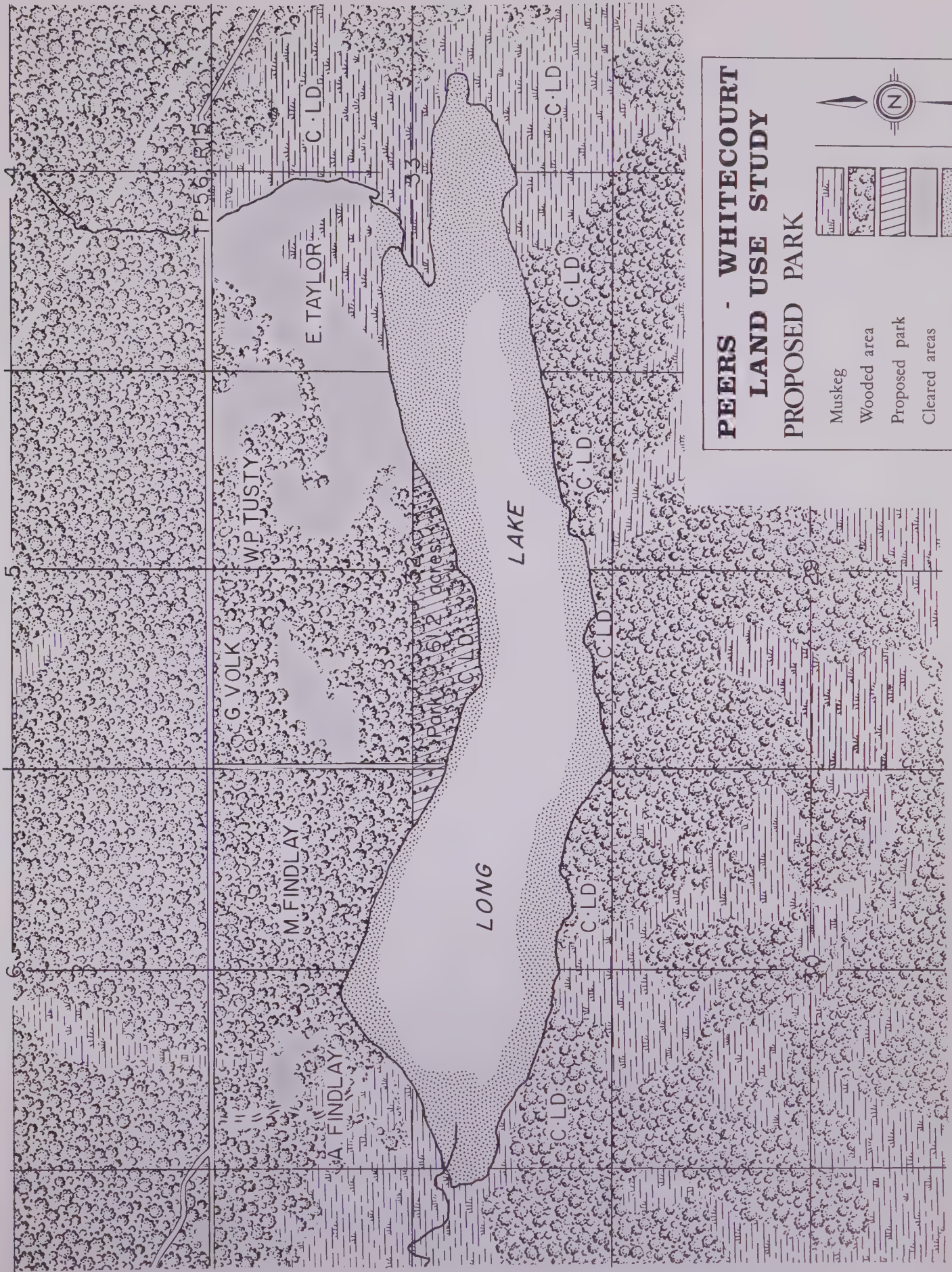
to picnic in relative seclusion.

The northern shore of Bear Lake provides the greatest potential for recreational development. The area is ideally suited for cottages and an attractive subdivision could be designed taking advantage of topography and aspect. There is only a slight bank of 4 feet compared to the 20 foot bank in front of the cottage subdivision on the south side of the lake. The shoreline is suited for boat launching and landing facilities as the water is approximately 4 feet deep 15 feet from shore. To reach this area it would be necessary to construct a road for approximately three quarters of a mile from the gravelled roadway east of the lake. This would involve crossing a small stretch of muskeg but should not prove too difficult. It is suggested that if the cottage subdivision is developed a small area of park reserve should be located at its western end.

The backshore and shoreline of much of Bear Lake offer considerable recreational potential, but it must be remembered that before any future development takes place the carrying capacity of the lake must be determined.

(d) Long Lake

Long Lake, situated approximately four miles northwest of Bear Lake, offers limited recreational potential. The greatest hinderance to development is the extensive weed growth over much of the lake. Although the lake covers approximately 560 acres, 326 of these are restricted from use because of dense weed growth. The fishing potential of the lake is the only asset which exists. Fishing for Northern Pike and yellow perch is good particularly in the winter months when the lake receives its greatest use. The entire area to the south of the lake is Crown land, but no access exists into this area. A portion of Crown



PEERS - WHITECOURT LAND USE STUDY PROPOSED PARK

- Muskeg
- Wooded area
- Proposed park
- Cleared areas
- Weeded shoreline



land does exist on the northern side of the lake and is easily accessible. It is proposed that this area be reserved for municipal park purposes. Construction of minor facilities should be undertaken to serve the needs of the fishermen.

It is unlikely that the lake will ever contribute significantly to the recreational requirements of the area. However, it may be possible to maintain the water level by constructing a dam on the creek flowing out of the lake at its western end.

(e) Horseshoe Lake

This small lake, 250 acres, midway between Bear Lake and Long Lake offers little recreational potential. The lake is quite shallow and weed growth is extensive. It is believed that due to the shallowness of the lake there is complete winter kill of fish. It appears that a small intermittent stream flows from the northern end of Horseshoe Lake into Long Lake. The damming of Long Lake may raise the water level sufficiently to back up water in the stream and hence maintain an adequate water level in Horseshoe Lake. If this is not successful, then it may be possible to dam Horseshoe Lake at its northern end. The lake is surrounded by an excellent backshore which would be very suitable for development should the water level be raised.

The lakes discussed above are the only ones of any significance within the study area. Although their potential is not very great, they will permit a certain degree of development. They may become even more important should the proposed secondary highway be constructed between Edson and Whitecourt. A significant number of tourists use the present Peers-Whitecourt highway in travelling

between Jasper and the north in the summer months. Both Shiningbank Lake and Bear Lake are situated within two miles of the proposed secondary highway and if developed will attract some of this tourist traffic.

Although the recreation capability of the area as a whole is not very high, there are several locations which should be considered for future development. It is felt that instead of minimally developing, numerous small sites, development should be focused on a few prime sites. Within the study area these sites would include Whitecourt Mountain, Shiningbank Lake and Bear Lake. Other areas possess recreational potential, but are not significant enough to be developed. They should be left in their natural state as park reserve.

The extent of recreational development will depend largely upon the existing demand and the availability of development capital. Detailed investigation of the lakes must be undertaken to prevent over development. Recreational development within the study area cannot be done solely on a local basis. It must be co-ordinated in all aspects with the surrounding regions.

The recently established Green Grove and Yellowhead Recreation areas, which cover the southern portion of the study area, are intended to implement and pursue a recreation service for the areas involved. These areas are established under Section 45 of the Improvement Districts Act, being Chapter 39 of the Statutes of Alberta, 1965. It is important that all recreational development within this portion of the study area be co-ordinated through these recreation boards.

XVIII CONCLUSION AND RECOMMENDATIONS

(a) Conclusion

It is difficult at this time to assess the success of this land use study. The study attempts to indicate the highest and best use of each specific quarter-section of land involved. (See Map U, Proposed Land Use Plan.) This is the first time that capability classification information from the Canada Land Inventory has been employed in this manner. If the validity of this system is confirmed, then it may be easier to establish the successfulness of the study.

Administratively, success will largely depend upon those government officials who utilize the study. It must be emphasized that the recommendations should be used as a land use guide and not as a zoning bylaw because the information is on a quarter-section basis and is not detailed enough to facilitate zoning.

Once the proposals have been carefully reviewed by the government officials involved in the administration and planning of the area, then it may be feasible to zone certain lands for recreational and country residential use, and thus work towards development of a regional plan.

It is unlikely that it will be practical to zone lands for forestry and agricultural use until such time as a definite policy regarding development in the region is established by the two departments involved. At the present time agricultural use of the land is marginal in this area, both from a physical and economic point of view. However, this situation may change and it might then be possible to convert some of the land recommended for forestry to agricultural use.

Conversely it may be determined that this area is better suited to forestry and some land now recommended for agriculture would be converted to forestry.

The recreation proposals of the study must definitely be co-ordinated with the activities of other recreational agencies working in the area to assure realistic development.

If the study is successful, it will have created the foundation upon which studies of a similar nature can be developed.

In order to achieve success two main prerequisites must be met. Firstly, the methodology upon which the suggested land use for each quarter-section was established must be proven worthy. Secondly, the plan must then be properly implemented by those government and municipal officials involved. If both of these are achieved, then success should follow.

(b) Recommendations

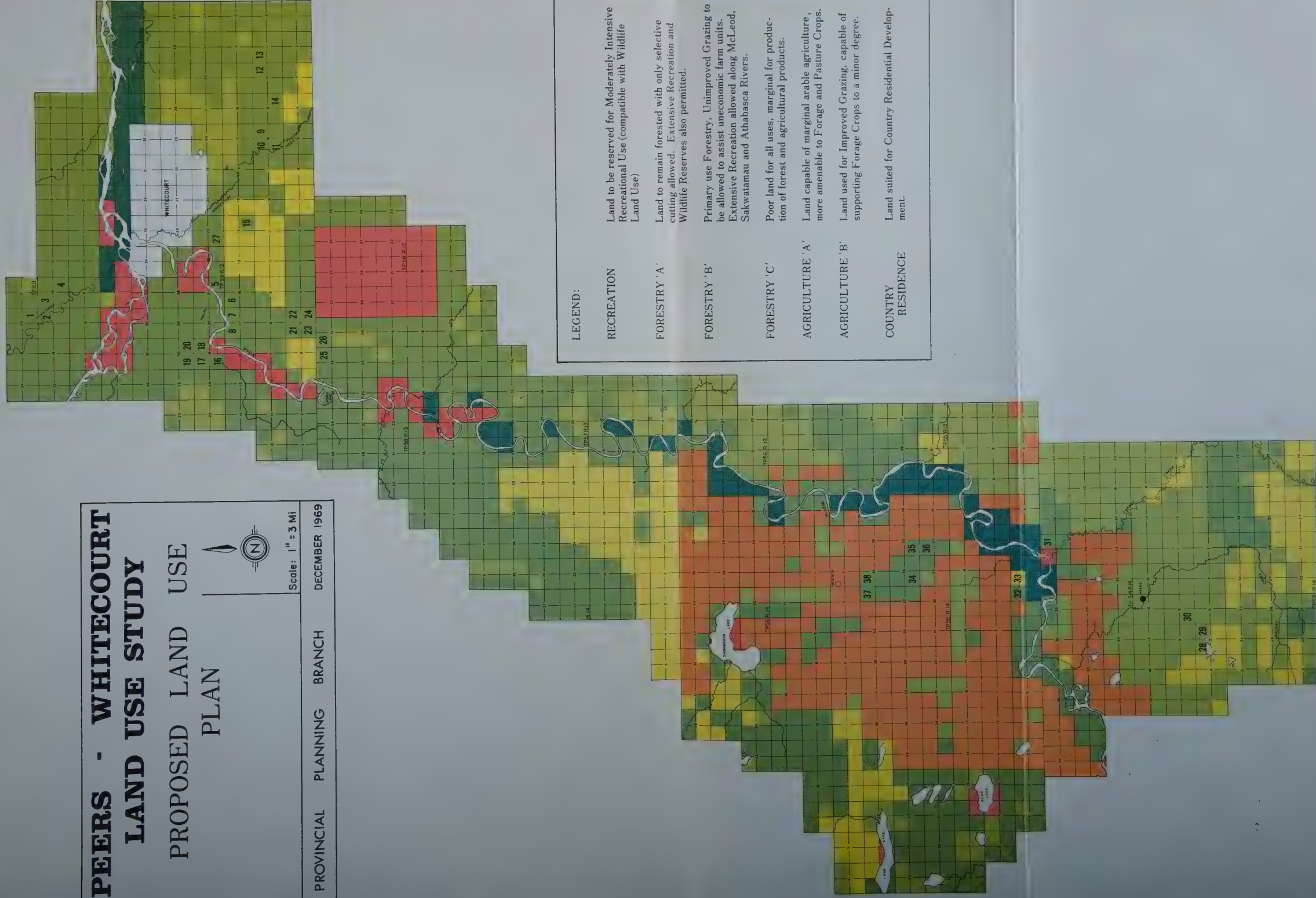
- (1) Country Residences - This study indicates that the sites listed in Table XXV are the best suited for country residential land use in the area. It is recommended that a development schedule be formalized between the Lands Branch of the Department of Lands and Forests, the Field Service Branch and the Provincial Planning Branch of the Department of Municipal Affairs, and that country residential sites become available to the public in the near future. Any requests for this type of development should only be considered on the sites mentioned in Table XXV and the degree of development should be incorporated into the development schedule established by the administrative bodies involved.

PEERS - WHITECOURT LAND USE STUDY PROPOSED LAND USE PLAN



Scale: 1" = 3 Mi

PROVINCIAL PLANNING BRANCH DECEMBER 1969



LEGEND:

RECREATION

Land to be reserved for Moderately Intensive Recreational Use (compatible with Wildlife Land Use)

FORESTRY 'A'

Land to remain forested with only selective cutting allowed. Extensive Recreation and Wildlife Reserves also permitted.

FORESTRY 'B'

Primary use Forestry, Unimproved Grazing to be allowed to assist uneconomic farm units. Extensive Recreation allowed along McLeod, Sakawatamau and Athabasca Rivers.

FORESTRY 'C'

Poor land for all uses, marginal for production of forest and agricultural products.

AGRICULTURE 'A'

Land capable of marginal arable agriculture, more amenable to Forage and Pasture Crops.

AGRICULTURE 'B'

Land used for Improved Grazing, capable of supporting Forage Crops to a minor degree.

COUNTRY RESIDENCE

Land suited for Country Residential Development.

1-38

- (2) Recreation – At the present time there is a shortage of recreation facilities in the Peers-Whitecourt area. This study recommends that the sites indicated on Map U as being suited for recreational development should be reserved for future recreational use immediately. The degree of public demand should be used in determining a schedule for development of these sites.
- (3) Agriculture – Based on the past performance of the agricultural sector of the area, this study recommends the consolidation of existing farm units and a shift to a livestock oriented industry. Climate and physical characteristics inhibit attempts to produce arable crops. Agricultural pursuits should be limited to the areas outlined on the Proposed Land Use Map until such an industry is established. Following this, expansion could be allowed if required to increase the economic feasibility of individual farm units.
- (4) Forestry – Much of the Peers-Whitecourt study area is suited to some form of forest land use. Some of the highly productive lands along the McLeod and Athabasca Rivers, (Forestry A – Map U), should be left in their natural state with only selective cutting allowed to improve the quality of the timber stands. Other areas designated for forest use are primarily suited to the harvest of pulpwood. (Forestry B and C – Map U). In addition, small lumber mills should be allowed to function in these latter two areas to serve local needs. It is further recommended that all lands along the Athabasca, McLeod and Sakwatamau Rivers remain in forest cover for the purposes of conservation, recreation and wildlife habitat.

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